NP6035

SERVICE MANUAL

REVISION 0 JULY 1996

Canon
FY8-13ED-000

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I. FEATURES

1. Large-size touch panel display of an interactive type.

(1) For the first time in its class, the copier uses a large-size touch panel display of an interactive type, ensuring ease of operation.
(2) Its touch panel provides instructions on jam removal using animated images.

2. High overall productivity.

(1) The copier turns out as many as 35 copies every minute (A4, horizontal).
(2) It turns out the first copy in 4.9 sec (quick copying, non-AE).
(3) It uses a newly designed unit for faster two-sided copying (120% or higher than existing Canon machines).

3. High pick-up performance and ecological considerations.

(1) The copier is designed to accommodate large paper supplies (6-way pick-up; with Cassette Feeding Unit-F2 installed).
(2) On the average, it is capable of holding as many as 1,050 sheets of paper (500 sheets in Cassette Feeding Unit-J2 + 50 sheets in multifeeder).
(3) At maximum, it is capable of holding as many as 2,550 sheets of copy paper (with Cassette Feeding Unit-F2 installed).
(4) It is designed to ensure a pleasant office environment (quiet/space saving).
(5) It is designed with ecological considerations (low ozone, etc.).
(6) Its plastic parts are identified by material for recycling purposes.

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II. SPECIFICATIONS

A. Copier

1. Type

Item	Specifications
Body	Desktop
Copyboard	Fixed
Light source	Halogen lamp (290 W for 100/120 V; 320 W for 230 V)
Lens	Zoom lens
Photosensitive medium	OPC

2. System

Item	Specifications
Copying	Indirect photoelectrographic
Charging	Roller (direct charging)
Exposure	Slit (moving light source)
Copy density adjustment	Auto (AE) or manual
Development	Dry (toner projection)
Pick-up	2 cassettes, multifeeder
Transfer	Roller
Separation	Curvature + static eliminator
Cleaning	Blade
Fixing	Heat roller (700 W main + 60 W sub for 100/120 V; 750 W main + 640 W sub for 230 V)

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3. Performance

Item			Specifications
Type of original			Sheet, book, 3-D object (2 kg max.)
Maximum size of original			A3 (297 × 420 mm), 279 mm × 432 mm (11" × 17")
Copying ratio			Direct, 4R4E, 4R3E, or 2R2E (Table 1-201), zoom (49% to 204%)
Wait time			98 sec or less ; at 20°C or more
First copy			5.0 sec or less (A4, Direct, non-AE, from cassette 1) 6.5 sec or less (A4, Direct, AE, from cassette 1)
Continuous copying			100 copies (max.; may be varied between 1 and 100 in service mode)
Copying speed			See Table 1-2.
Copy size			Cassette: A3/279 mm × 432 mm (11" × 17") to A5 (STMT) Manual: A3/279 mm × 432 mm (11" × 17") to postcard (A6)
Type of copy paper	Cassette		Plain paper (64 to 80 g/m²), tracing paper (SM1), colored paper*1
	Manual		Plain paper (64 to 128 g/m²), tracing paper (SM1, GNT80*2), colored paper*1, transparency*1 *3, postcard*1, label sheet*1
	Two-sided/ overlay copying	Auto	Plain paper (64 to 80 g/m²), colored paper*1
		Manual	Plain paper (64 to 128 g/m²), colored paper*1, postcard*2
Cassette			500 sheets, clawless, front loading
Copy tray			100 sheets (approx.)
Non-image width			2.0 ±1.0 mm (leading edge), 2.5 ±1.5 mm (trailing edge), 2.5 ±1.5 mm (left/right)
Auto clear			Provided (2 min standard, may be varied between 1 and 9 min in 1-min increments; may be disabled)
Auto power-off			Provided (1 hr standard, may be varied between 1 and 24 hr in 1-hr increments; may be disabled in service mode)
Option			• Sorter 20-C1/Stapler Sorter-C1 • Stapler Sorter-B2 • ADF-B1 • RDF-C1 • Pedestal with Duplexing Unit-B1 • Cassette Feeding Unit with Duplexing-N1 • Cassette Feeding Unit-H2 • Cassette Feeding Unit-F2 • Paper Deck Pedestal with Duplexing-L1 • Cassette Feeding Unit-J2

*1: Must be Canon recommended material.
*2: Must be de-curled.
*3: Must be separated to eliminate bonding between sheets before setting on the manual feed tray.

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4. Others

Item		Specifications	
Operating environment	Temperature	7.5 to 32.5°C	
	Humidity	5% to 85%	
	Atmospheric pressure	810.6 to 1013.3 hpa	
Power supply		Serial number	
	120 V	NGN ×××××	
	120 V	NGL ×××××	
	220 V	PCD ×××××	
	220 V	UBT ×××××	
	240 V	RBD ×××××	
Power consumption	Maximum	1.5 kW or less	
	Standby	0.18 kWh (approx. average; reference only)	
	Continuous copying	0.80 kWh (approx. average; A4; reference only)	
Noise	Copying	71.0 dB or less	Sound power level by ISO
	Standby	50.0 dB or less	
Ozone (avr over 8 hr)		0.01 ppm or less (average); 0.02 ppm or less (max.)	
Dimensions	Width	610 mm	
	Depth	655 mm	
	Height	535 mm	
Weight		78.0 kg (approx.)	
Consumables	Copy paper	Keep wrapped to protect against humidity.	
	Toner	Store at 40°C/85% or less while avoiding direct sunshine.	

	Direct	1 : 1 (±0.5%)		
		100 V/230 V: Europe	115 V	230 V: Australia/general
Copying ratio	Reduce I	1 : 0.500	1 : 0.500	1 : 0.500
	Reduce II	1 : 0.707	1 : 0.647	1 : 0.707
	Reduce III	1 : 0.816	1 : 0.733	
	Reduce IV	1 : 0.865	1 : 0.786	
	Enlarge I	1 : 1.154	1 : 1.214	1 : 1.414
	Enlarge II	1 : 1.224	1 : 1.294	1 : 2.000
	Enlarge III	1 : 1.414	1 : 2.000	
	Enlarge IV	1 : 2.000		
	Zoom	49% to 204% (in 1% increments)		

Table 1-201 Default Ratios

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• Pick-Up from Cassette 1

Copying ratio		Copy size			Copies
Direct	1 : 1 (+0.5%)	A3	(297 × 420)		21
		A4	(210 × 297)		35
		A5	(148 × 210)		36
		B4	(257 × 364)		23
		B5	(182 × 257)		36
		A4R	(297 × 210)		28
		A5R	(210 × 148)		36
		B5R	(257 × 182)		31
Reduce	1 : 0.707 (+1.0%)	A3	→	A4R	25
		B4	→	B5R	28
	1 : 0.816 (+1.0%)	B4	→	A4R	25
	1 : 0.865 (+1.0%)	A3	→	B4	22
		A4	→	B5	33
Enlarge	1 : 1.414 (+1.0%)	A4R	→	A3	20
		B5R	→	B4	20
	1 : 1.224 (+1.0%)	A4R	→	B4	23
	1 : 1.154 (+1.0%)	B4	→	A3	20
		B5	→	A4	27

Table 1-202 Copying Speed (100/230 V)

Copying ratio		Copy size	Copies
Direct	1 : 1 (+0.5%)	LTR	35
		279 mm × 432 mm (11" × 17")	20
		LGL	24
		LTRR	29
		STMT/STMTR	36/35
Reduce	1 : 0.786	LGL → LTRR	27
	1 : 0.733	279 mm × 432 mm (11" × 17") → LGL	24
		11 × 15→LTRR	26
	1 : 0.647	279 mm × 432 mm (11" × 17") → LTRR	26
Enlarge	1 : 2.000	STMTR → 279 mm × 432 mm (11" × 17")	20
	1 : 1.294	LTRR → 279 mm × 432 mm (11" × 17")	20

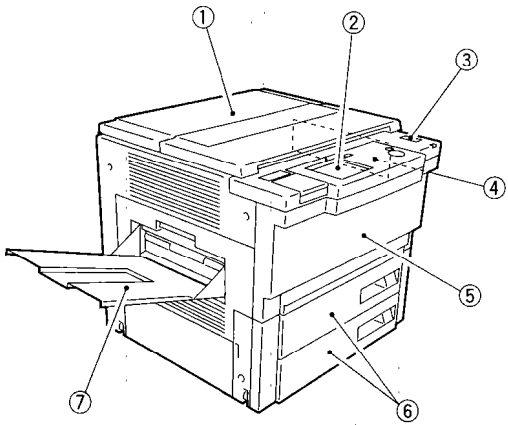
Table 1-202 Copying Speed (115 V)

Specifications subject to change without notice.

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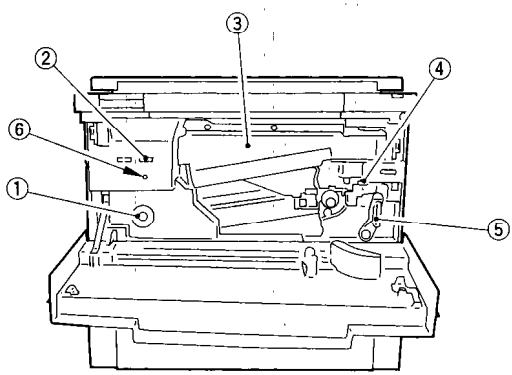
III. NAMES OF PARTS

A. Exterior View



① Copyboard cover
② Control panel
③ Power switch
④ Multifeeder
⑤ Front door
⑥ Cassette
⑦ Copy tray

Figure 1-301



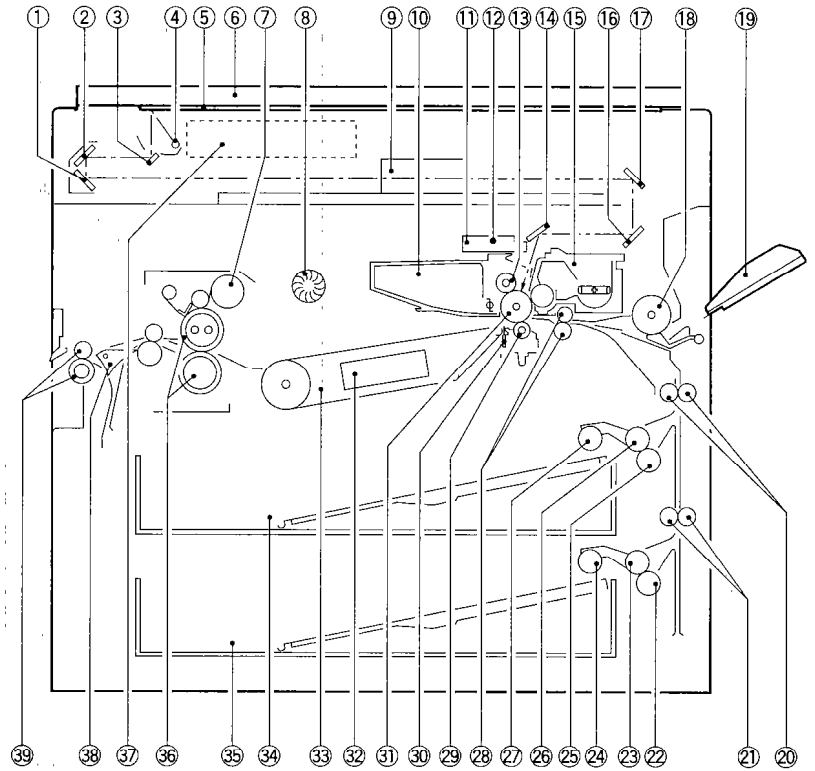
① Fixing assembly knob
② Total counter
③ Hopper
④ Locking lever (developing assembly)
⑤ Feeding assembly releasing lever
⑥ Control panel brightness adjusting VR

Figure 1-302

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B. Cross Section

1. Body Cross Section



① No. 3 mirror
② No. 2 mirror
③ No. 1 mirror
④ Scanning lamp
⑤ Copyboard glass
⑥ Copyboard cover
⑦ Web
⑧ Exhaust fan
⑨ Lens
⑩ Drum cleaning assembly
⑪ Pre-exposure/blank exposure unit
⑫ Pre-exposure lamp
⑬ Primary charging roller
⑭ No. 6 mirror
⑮ Developing assembly
⑯ No. 5 mirror
⑰ No. 4 mirror
⑱ Multifeeder pick-up roller
⑲ Multifeeder tray
⑳ Vertical path roller 1
㉑ Vertical path roller 2
㉒ Cassette 2 separation roller
㉓ Cassette 2 feeding roller
㉔ Cassette 2 pick-up roller
㉕ Cassette 1 separation roller
㉖ Cassette 1 feeding roller
㉗ Cassette 1 pick-up roller
㉘ Registration roller
㉙ Transfer roller
㉚ Static eliminator
㉛ Photosensitive drum
㉜ Feeding fan
㉝ Feeding assembly
㉞ Cassette 1
㉟ Cassette 2
㊱ Fixing roller
㊲ Scanner cooling fan
㊳ Delivery paper deflecting plate
㊴ Delivery roller

Figure 1-303

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IV. OPERATION

A. Control Panel

Numeric Keypad
Use it to set a copy count or to enter an ID number.

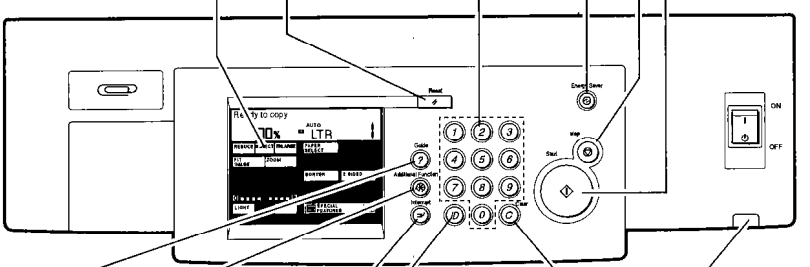
Energy Saver Key
Press it to start Energy Saver state or to end Energy Saver mode.

Touch Panel Display
Shows the Basic/ Extended screen for operation of the machine.
Use the contrast adjusting knob to adjust the contrast of the LCD.

Reset Key
Press it to return the copying mode to standard.

Stop Key
Press it to stop continuous copying.

Start Key
Press it to start copying.



User Mode Key
Use it to select or de-select user mode. (Use it for setting preferences or changing standard mode.)

ID Key
Press it after entering a number when registering an ID number.

Pilot Lamp
Turns ON to indicate when the power is

Clear Key
Press it to return the copy count to '1' or to de-select any input entered when setting a mode.

Guide Key
Press it for a description of a specific mode.

Interrupt Key
Press it to make a separate copy while continuous copying is taking plate.

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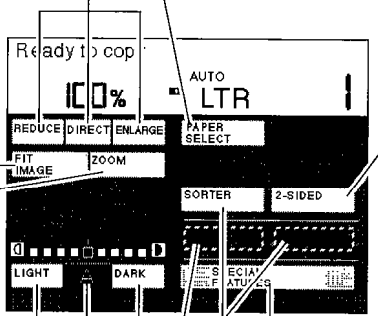
B. Touch Panel (Basic screen)

Paper Select Key
Press it to select the source of paper (auto paper selection, cassette, manual feed tray).

Two-Sided Key
Press it to select or de-select two-sided mode (one-sided original to two-sided copy, two-sided original to two-sided copy, two-sided original to one-sided copy, page separation two-sided copy).

Enlarge/Reduce/Direct Key
Press it to select enlargement/reduction or to return the ratio to Direct (100%).

Fit Image Key
Press it to select or de-select fit image mode.
Selecting this mode produces copies without missing images.



Zoom Key
Press it to select or de-select the zoom ratio/auto ratio/zoom program function.

Copy Density Key
Press it to adjust the copy density manual.

AE Key
Press it to select or de-select AE mode (auto density adjustment).

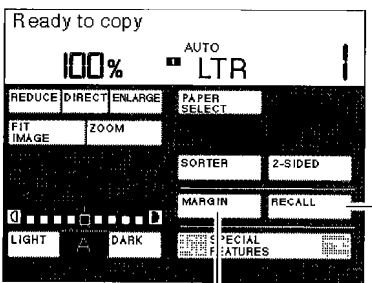
Extended Mode Key
Press it to select extended mode.

Preference Key 1/2
Accepts up to two extended modes and call/two-sided/sorter for display on the Basic screen.

Sorter Key
Press it to select or de-select sort, staple sort, or group mode.

- Sort mode is effective when a stapler sorter or RDF is installed.
- Staple sort mode is effective when a stapler sorter is installed.
- Group mode is effective when a stapler sorter is installed.

Basic Screen with Preference Key Selected
The following shows the screen when binding and call settings have been registered under the Preference



Call
Press it to call back a previously used copying mode (up to 3 most recent modes).

Preference Key 1/2

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C. Touch Panel (Extended mode screen)

Page Separation Key
Press it to select or de-select page separation mode. Selecting this mode enables copying a page spread (left/right) on separate sheets by a single operation.

Binding Margin Key
Press it to select or de-select binding margin mode. Selecting this mode creates a margin on the edge of the copy for binding.

Image Composition Reduce Key
Press it to select or de-select image composition reduce mode. Selecting this mode enables copying two or four originals on one sheet of paper through reduction.

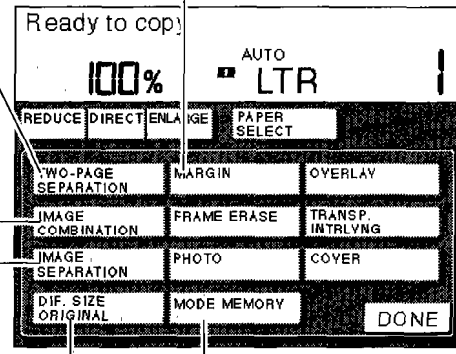


Image Composition Enlarge Key
Use it to select or de-select image composition enlargement mode. Selecting this mode enables copying one original on one side or two sides of one sheet of paper of a specific size through division into 2 or 4.

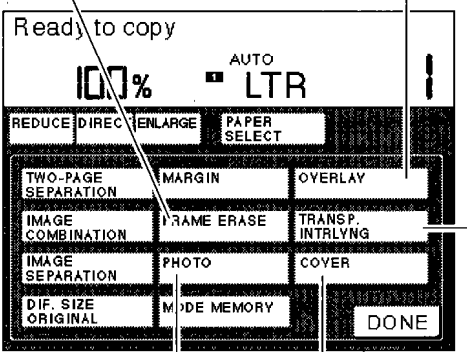
Mode Memory Key
Press it to register or call copying mode. (Up to 9 copying modes may be registered.)

Mixed Original Size Key
Press it to select or de-select mixed original size mode. (This mode is effective only when an optional ADF/RDF is installed).

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Frame Erase Key
Press it to select or de-select frame erase mode (original frame erase, sheet frame erase, book frame erase, hole image erase).
Selecting this mode erases the shadow/frame image of the original on copies.

Overlay Mode
Press it to select or de-select overlay mode (overlay, page separation overlay).
Selecting this mode enables copying of the images of two originals on one sheet of paper (A4, B4, A5) by superimposing one set of images over another.



Transparency Interleaf Key
Press it to select or de-select transparency interleaf mode.
Selecting this mode enables insertion of a sheet of paper between copied transparencies. In addition, the mode enables copying of images used on transparencies on such paper.

Cover Key
Press it to select or de-select cover mode.
Selecting this mode enables attachment of a cover and back cover (colored paper, etc.).
(This mode is effective only when an optional ADF/RDF is installed.)

Photo Mode
Press it to select or de-select photo mode.
Selecting this mode enables reproduction of originals with halftone images (photos, etc.).

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D. Basic Operation

1) Turn on the power switch.
   • The wait time is about 98 sec (at 20°C room temperature).
2) Open the copyboard cover, and place the original face down against the size index.
3) Press the Direct, Reduce, Reduce, or Zoom key to suit the desired reproduction ratio.
4) To select a specific copy size, select the cassette containing such paper.
   • If no such cassette is available, adjust the guide plate inside the cassette, and put appropriate paper.
5) Press the Copy Density key to suit the original.

① For a dark copy, press the Copy Density key DARK on the display so that the indicator moves to the right; for a lighter copy, on the other hand, press the Copy Density key LIGHT so that the indicator moves to the left.

6) Set the appropriate copy count (1 to 100) using the keypad, and check the copy count indicator.

① If you cannot set a copy count by the keypad or if you have made a mistake, press the Clear/Copy Start key, and try again.

7) Press the Copy Start key.

① You may set auto start mode.

② If an RDF is installed, the originals set on the original tray will be automatically picked up and copying will start.

③ As many copies as set will be automatically made.

④ Between when copying starts and when it ends, you cannot change copying mode by pressing keys other than the Clear/Stop key, Reset key, or Copy Density key.

⑤ Between when copying starts and when it ends, you may switch from auto to manual density adjustment. (You cannot, however, switch from manual to auto.)

Reference:

If copies made in AE are too dark or too light, you may make copies while changing the copy density by pressing the Copy Density key.

⑥ To stop continuous copying operation, press the Clear/Stop key or the Rest key. The operation will stop after finishing the ongoing copying run.

⑦ After copying operation, the copy count indicator will indicate the initial count.
If copying operation stops in the middle and the Add Paper indicator turns on, supply the cassette in question with paper, and press the Copy Star key to make the remaining number of copies.

⑧ If a jam occurs in the middle of copying, the Jam message will appear on the display and copying operation will stop.
The copy count indicator after jam removal will indicate the remaining number of copies to make.

⑨ The copier will return to standard mode if left alone for about 2 min after the end of copying operation or the last key operation. (This is called auto clear, and you can change the auto clear time.)

Caution:

1. Be sure to feed postcards vertically.
2. Be sure to feed A4 label sheet horizontally.

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E. Auto Start

You can select auto start mode when the copier is in wait state*.

* Wait state after power-on.

While the copier is in wait state, set an original, select copying mode, and press the Copy Start key.

The wait indicator will change from green to orange to indicate that auto start has been selected. (You cannot select interrupt mode.)

Copying will start automatically using the selected copying mode as soon as the copier starts standby state.

To de-select auto start, press the Clear/Stop key or the Reset key.

F. Registering ID Mode

You can store 6-digit ID numbers so that copies may be made only when a correct ID number is entered.

As many as 300 types of ID numbers may be registered, and you can control the volume of copying according to ID numbers (groups).

■ Registering ID Numbers

1) Press the User Mode, ID, Stop, and User Mode keys in sequence.
2) Press 'yes' to 'ID control by group', and press 'register ID number'.
   - If you select 'no', copies may be made without entering an ID number.
3) Select the appropriate number to highlight under which you want to register an ID number.
   - Use ▼/▲.
   - Press ▼/▲ to highlight the group number under which you want to register an ID number.
   - Select a group number to highlight.
   1. Press 'group number'.
   2. Enter a 4-digit group number using the keypad (① to ⓪).
   3. Press 'group number'.
      - The selected group number will move to the top of the list.
4) Enter an ID number using the keypad (① to ⓪).
   - If you made a mistake, press the Clear key, and enter the correct number.
   - You cannot use the same number twice.
   - Entering '0000000' will cancel the ID number of the group in question.
   - You may register as many as 300 types of ID numbers.
5) Press 'OK'.
   To continue storing ID numbers, repeat steps 3) through 6).
6) When done, press the ✳ key so that the ID Number Input Screen will appear.

■ Removing ID Numbers

Selecting 'no' to 'ID control by group' will enable making copies without entering an ID number.

1) Press the User Mode, ID, Stop, and User Mode key in sequence.
2) Press 'no' to 'ID control by group', and press 'close'.

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- This setting will remain effective until you select 'yes' to 'ID control by group'.

■ Controlling the Count (checking count by group)

The cumulative number of copies made (6 digits max.) may be displayed by ID number.

1) Press the User Mode, ID, Stop, and User Mode keys in sequence.
2) Press 'count control'.
3) Press ▼/▲ until the group whose count you want to check appears.
   You may directly enter the number of the group. Enter the 4-digit group number using the keypad (① to ⓪) so that the group will move to the top of the list.
   Press 'OK' when you have checked the count.

■ Controlling the Count (clearing all counts)

You can clear the counts (cumulative number of copies made) of all ID numbers so that they return to '0'.

1) Press the User Mode, ID, Stop, and User Mode keys in sequence.
2) Press 'count control'.
3) Press 'count all clear'.
4) Press 'yes'.
   - To stop 'count all clear', press 'no'.
     All counts (Cumulative number of copies made of all ID numbers will be reset to '0'.)
     Press 'OK' so that the ID No. Input screen will appear.
   - You cannot clear the counts individually.

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G. User Mode

Yo may use user mode to suit the various factory-set functions to the needs of the user. (You may also use the mode to make adjustments or execute cleaning.)

Make use of user mode for changing the following:

■ Setting Specifications

Function	Initial settings	
Setting of Preference key 1	None	
Setting of Preference key 2	None	
On/OFF of auto sorting	ON	
On/OFF of manual size selection	OFF	
ON/OFF of feeder non-default size	OFF	
ON/OFF of inch input	OFF	
ON/OFF one-sided to two-side coping auto count	ON	
ON/OFF of paper icon setting	OFF	
ON/OFF of cassette auto selection	ON	
ON/OFF of buzzer	Input sound	ON
	Alarm sound	ON
	Standby sound	ON
	Copying end sound	ON
Fit image mode setting	Copy ratio	93%
	Centering	ON
	Non-image width	OFF
Initializing of specifications	———	
Changing of standard mode	———	

■ Timer Setting

Function	Initial settings
Changing auto clear time	2 min
Changing auto power-off time	1 hr

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■ Adjustment/Cleaning

Name/function	Operation
Density Correction Use density correction if the density of copies made at standard (center value) of manual density correction is darker or lighter than the original.	1) Press 'density correction'. 2) Use ◀▶ to set the appropriate density correction level, and press 'OK. • For darker copies, press ▶. • For lighter copies, press ◀. • Check actual copies to evaluate the results of adjustment.
Zoom Fine-Adjustment Use fine-adjustment if a slight discrepancy is noted between the size of the image on an original and that of the copy made in Direct (100%). You may adjust X and Y directions independently in 0.2% increments up to ±1%.	1) Press 'zoom fine-adjust'. 2) Press ◀▶ to adjust, and press 'OK'. • Press ▶ to increase the ratio. • Press ◀ to decrease the ratio.
Cleaning the Feeder At times, originals may become soiled (black lines) after using the document feeder (ADF/RDF). If such a problem is noted, place blank sheets of paper (copy paper) in the feeder, and clean the original pick-up roller by circulating the sheets.	1) Set about ten sheets of blank sheets of paper (copy paper) in the ADF/RDF. • Use A4 paper. 2) Press 'feeder cleaning'. 3) Press 'start'. 4) If you have used ten sheets of paper, the feeder will have been cleaned in about 15 sec. • This cleaning operation is effective only when an ADF/RDF is installed. • Do not use the paper used for cleaning, as it is likely to be soiled. • To stop cleaning in the middle, press 'stop'.
Roller Cleaning If copies are soiled (black lines), clean the rollers.	1) Press 'roller cleaning'. 2) Press 'start'. 3) Check that the operation is over (in about 5 sec). • To stop cleaning in the middle, press 'stop'.

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V. ROUTINE MAINTENANCE BY THE USER

Instruct the user to perform the following at least once a week:

(1) Copyboard Glass
Wipe it with a moist cloth, and dry-wipe it.

(2) Copyboard Cover
Wipe it with a cloth moistened with solution of mild detergent, and dry-wipe it.

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I. IMAGE FORMATION

A. Outline

The NP6035 uses a direct charging/transfer method, and its construction is as shown in Figure 2-101.

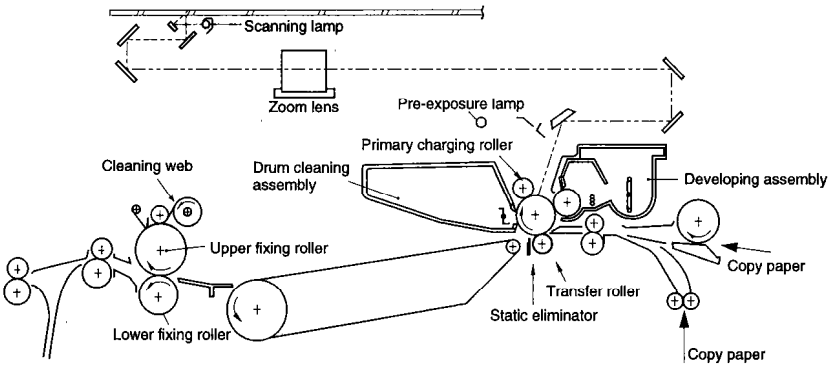


Figure 2-101

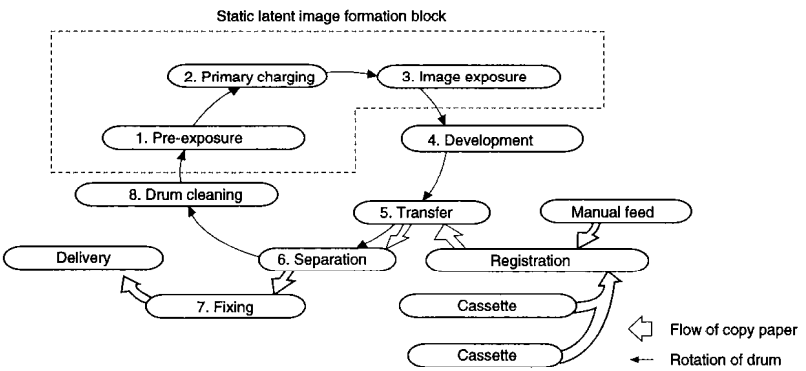


Figure 2-102

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The NP6035's image formation process consists of the following steps:

Step 1 Pre-exposure
Step 2 Primary charging (negative DC)
Step 3 Image exposure
Step 4 Development (AC and negative DC bias)
Step 5 Transfer (negative DC)
Step 6 Separation (curvature + static eliminator)
Step 7 Fixing
Step 8 Drum cleaning

The photosensitive drum has a layer construction: its outside is a photo-conducting layer made of OPC and inside, photo-conducting aluminum.

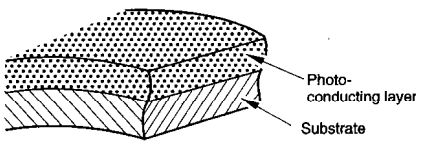


Figure 2-103

B. Static Latent Image Formation Block

The static latent image formation block consists of three steps, at the end of which negative charges are left in the areas of the photosensitive drum corresponding to the black areas of an original while removing negative charges from the areas of the photosensitive drum corresponding to the white areas of the original.

The static image formed on the photosensitive drum is not visible to the human eye and, therefore, is called a static latent image.

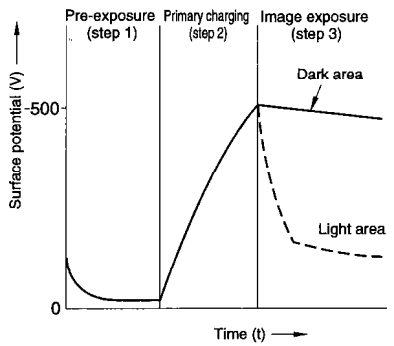


Figure 2-104

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C. Pre-Exposure (step 1)

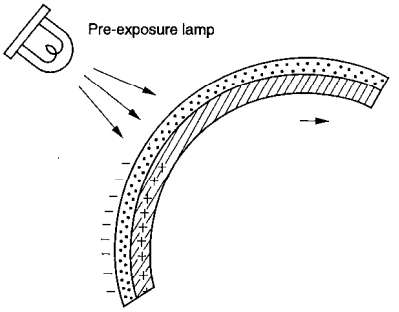


Figure 2-105

In preparation for primary charging, the light from the pre-exposure lamp is shone on the photosensitive drum surface, thereby removing the residual charges from the photosensitive drum surface and, ultimately, preventing uneven copy density.

D. Primary Charging (step 2)

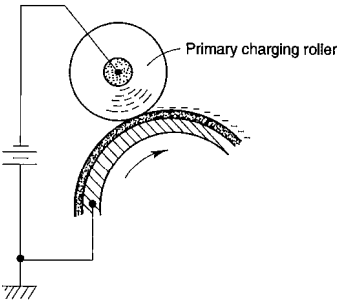


Figure 2-106

The NP6035 uses a charging roller made of conductive rubber for direct charging of the photosensitive drum.

The use of a direct charging method leads to lower application voltage than the conventional corona charging system and generation of virtually no ozone.

The NP6035's primary charging roller is a special roller and is not interchangeable with a transfer roller.

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E. Image Exposure (step 3)

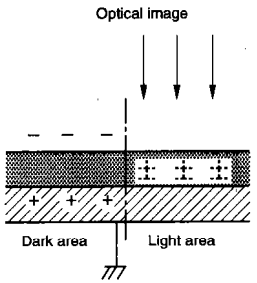


Figure 2-107

The optical image of the original is projected on the photosensitive drum to neutralize the charges in the light areas.

F. Development (step 4)

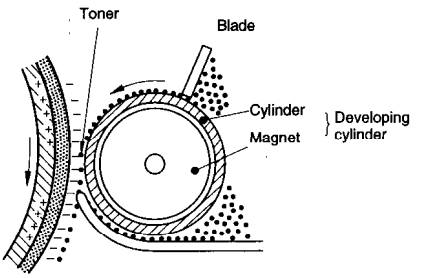


Figure 2-108

As shown in Figure 2-8, the developing assembly consists of a developing cylinder made of a fixed magnet and a cylinder that rotates around it and a magnetic blade.

The NP6035's developer is a single-component developer made of magnetic resins.

The developer has insulating characteristics and becomes charged to a positive potential by friction against the rotating cylinder.

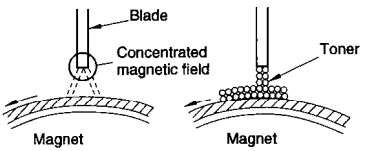


Figure 2-109

A concentrated magnetic field exists at all times from the magnet to the tip of the blade, attracting the developer.

Once inside the concentrated magnetic field, its strong bond to the blade will keep it virtually immobile, causing it to deposit in an even layer on the cylinder.

Both AC bias and DC bias (negative component) are simultaneously applied to the developing cylinder and the blade (developing bias), and the negative component of the developing bias is larger than the positive component.

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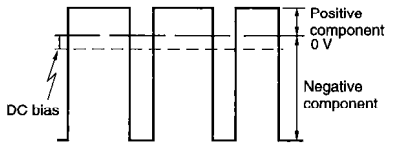


Figure 2-110

During copying, toner is attracted to the photosensitive drum by the work of the drum surface potential and the developing bias (at time of positive component), turning the static latent image into a visible image. Excess toner is drawn back from the photosensitive drum by the work of the drum surface potential and the developing bias (at time of negative component).

AC bias (frequency, in particular) mainly affects gradation, i.e., the lower the frequency, the better the gradation; however, such tends to cause fogging. DC bias mainly affects copy density and fogging; a higher bias, i.e., closer to 0 V, increases image density but tends to cause fogging.

G. Transfer (step 5)

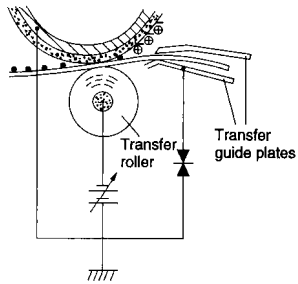


Figure 2-111

The transfer roller applies negative charges on the back of copy paper, thereby transferring toner images from the photosensitive drum to the paper.

The NP6035 uses a roller transfer method so that it requires lower transfer voltage than models using a corona transfer method, generating virtually no ozone.

To prevent transfer failure or soiling of the back of copy paper, the transfer guide is grounded through a varistor.

Reference:

If the transfer guide is directly grounded, the charges to be applied to the back of copy paper would escape, causing transfer failure; on the other hand, if it was completely separated, the charges would attract toner and soil the transfer guide, ultimately soiling the back of copy paper.

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Reference:

If the toner image on the photosensitive drum fails to be transferred to copy paper completely because of a jam or the like, the transfer roller can become soiled with toner.

The NP6035 switches the transfer voltage to a positive potential during wait, initial rotation, scanner forward, and post rotation periods, thereby returning the positively charged toner on the transfer roller to the photosensitive drum.

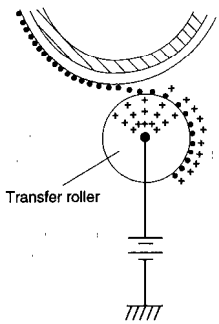


Figure 2-112

H. Separation (step 6)

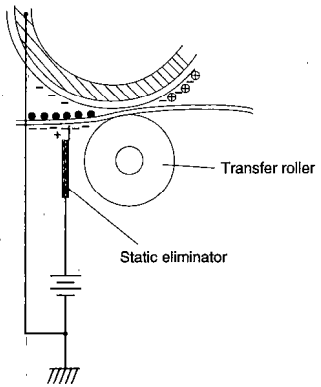


Figure 2-113

The NP6035 takes advantage of the rigidity of copy paper to separate it from the drum (curvature separation).

However, since thin copy paper has little rigidity, it can wrap around the drum without separating. To prevent such a problem, a positive voltage is applied to the separation static eliminator to weaken the static bonds between drum and copy paper, thereby facilitating separation.

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I. Fixing (step 7)

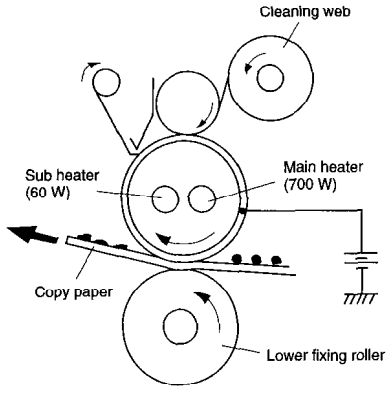


Figure 2-114

After transfer, copy paper is moved between two rollers for fixing of the toner image. The NP6035's upper roller is heated by two heaters (halogen lamp).

To prevent jams and toner offset, a belt (web) impregnated with silicone oil is kept in contact with the upper fixing roller, thereby cleaning and, while at the same time, applying silicone oil to the roller by moving the point of contact by a take-up mechanism.

To prevent toner offset, further, positive DC bias is applied to the upper fixing roller, thereby returning excess toner, which could stick to the upper fixing roller, to copy paper.

J. Drum Cleaning (step 8)

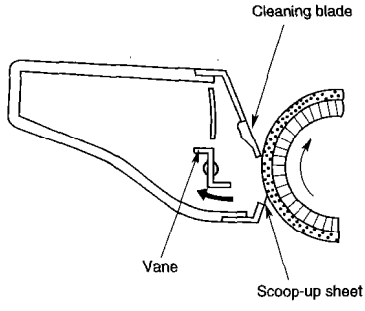


Figure 2-115

In preparation for the next copying run, the cleaning blade scrapes off toner remaining on the drum surface.

Thereafter, the toner is gathered by the scoop-up sheet and collected to the rear by a vane.

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II. AUXILIARY PROCESS

A. Blank Exposure

Blank exposure is used to eliminate the drum surface potential in the non-image area occurring as a result of the difference, if any, between original and copy or in Reduce mode.

The light from the pre-exposure lamp is reflected by the replacing plate so that it is directed to the photosensitive drum after image exposure.

The non-image area between sheets of copy paper is exposed by light from the pre-exposure lamp which is reflected by a separate reflecting plate.

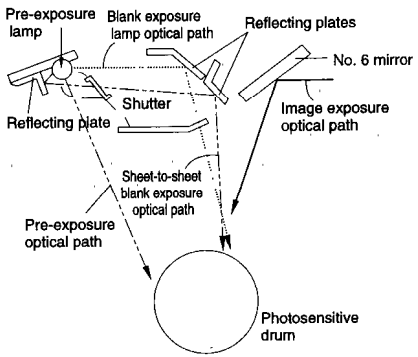


Figure 2-201

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I. BASIC OPERATION

A. Functional Construction

The NP6035 can roughly be divided into four functional blocks: i.e., pick-up/feeding system exposure system, image formation system, and control system.

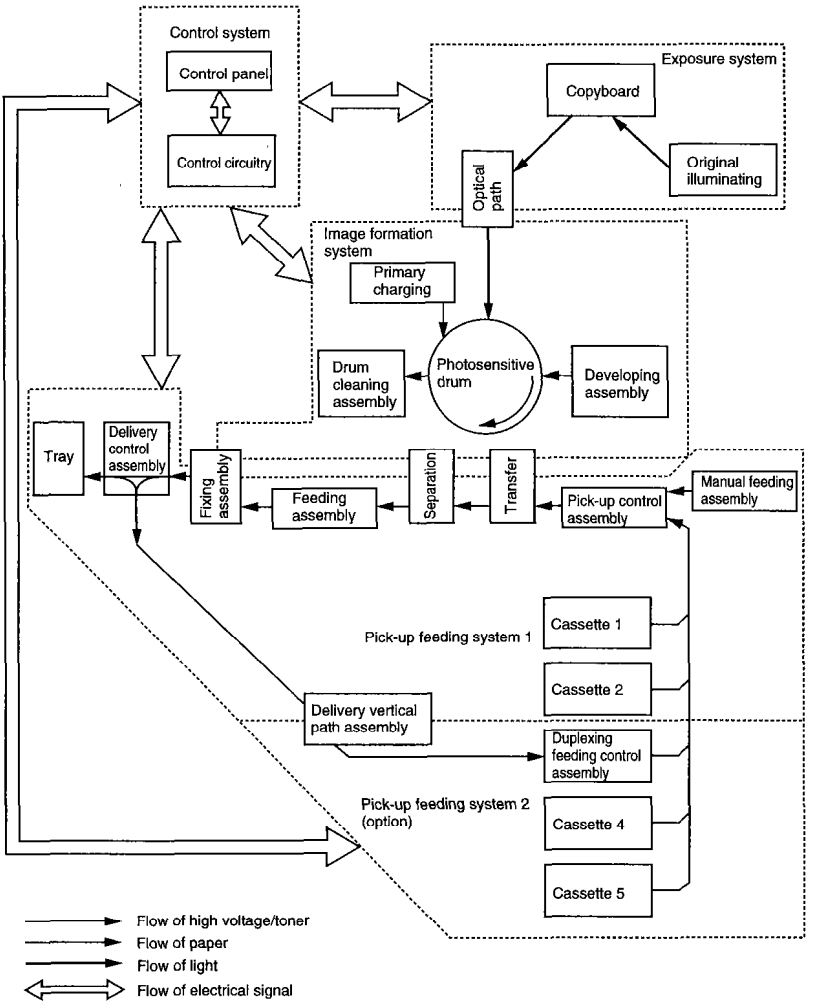


Figure 3-101

B. Electrical Circuitry

The NP6035's major electrical mechanisms are controlled by the two microprocessors on the DC controller PCB.

In addition to the microprocessors, two IPCs used to control communication with the RDF, sorter, and pedestal and a lithium battery used to back up data (RAM, IC108) are mounted on the DC controller PCB.

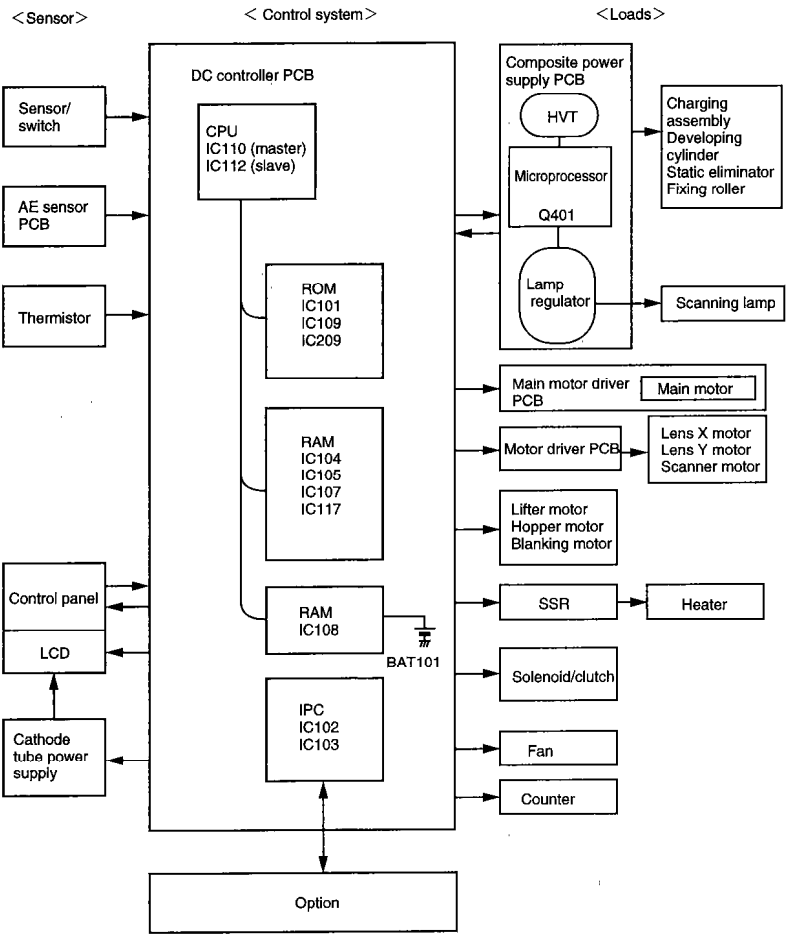


Figure 3-102

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C. Inputs to the DC Controller

1. Inputs to the DC Controller (1/4)

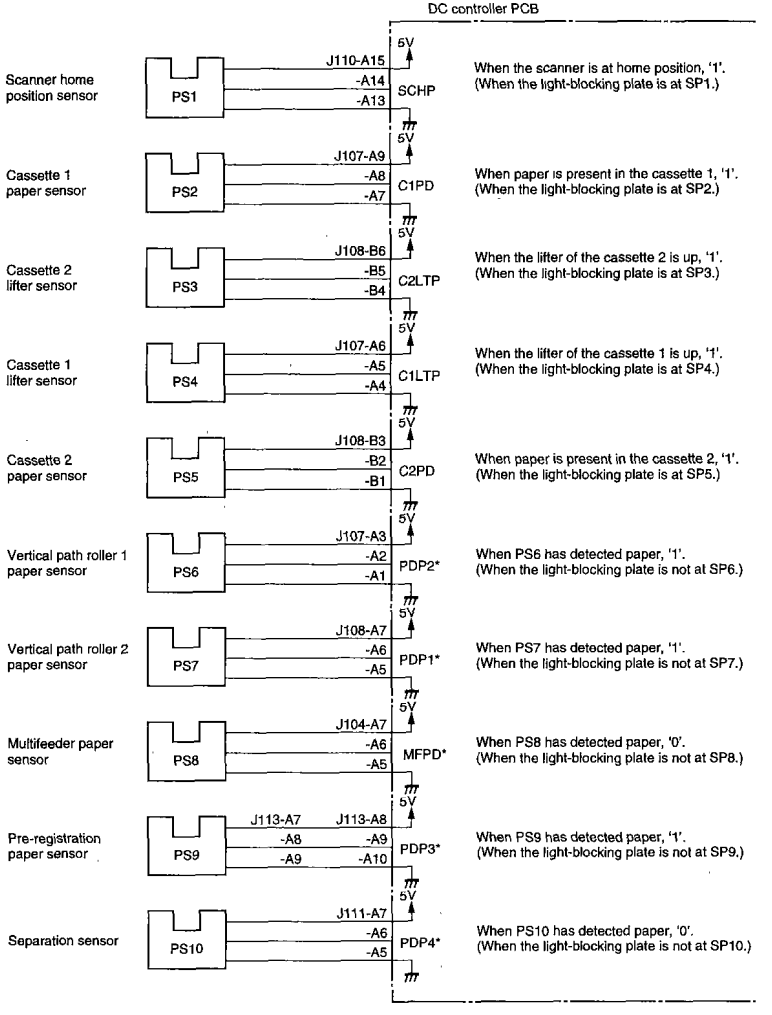


Figure 3-103

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2. Inputs to the DC Controller (2/4)

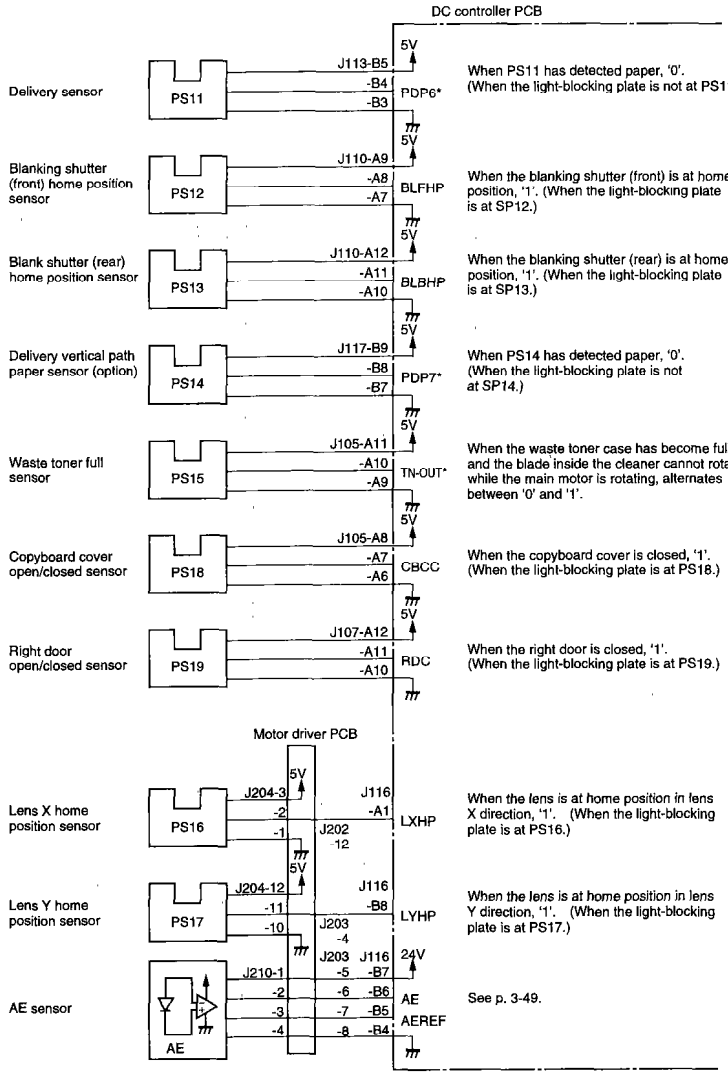


Figure 3-104

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3. Inputs to the DC Controller (3/4)

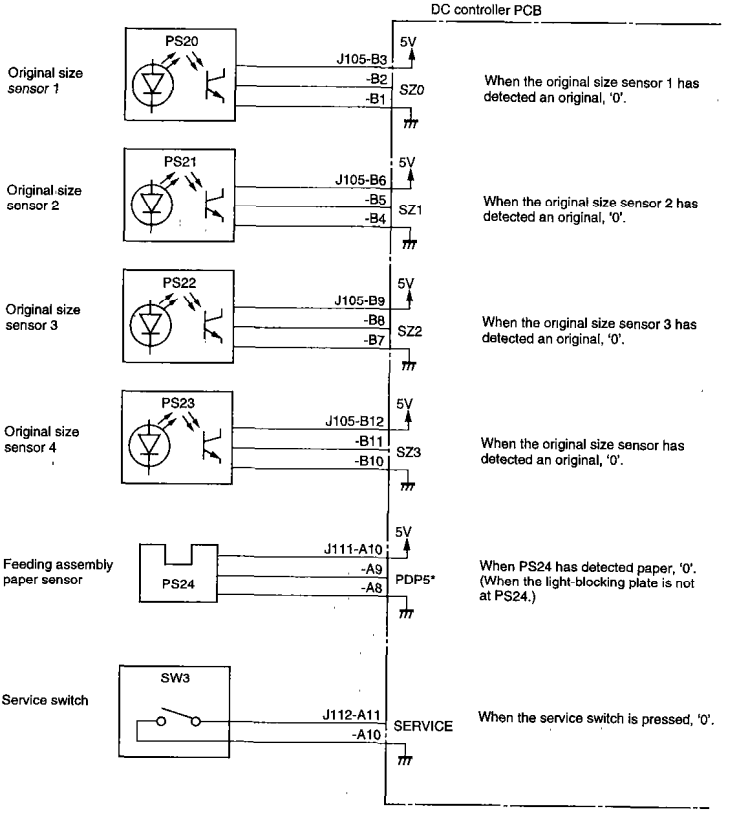


Figure 3-105

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4. Inputs to the DC Controller (4/4)

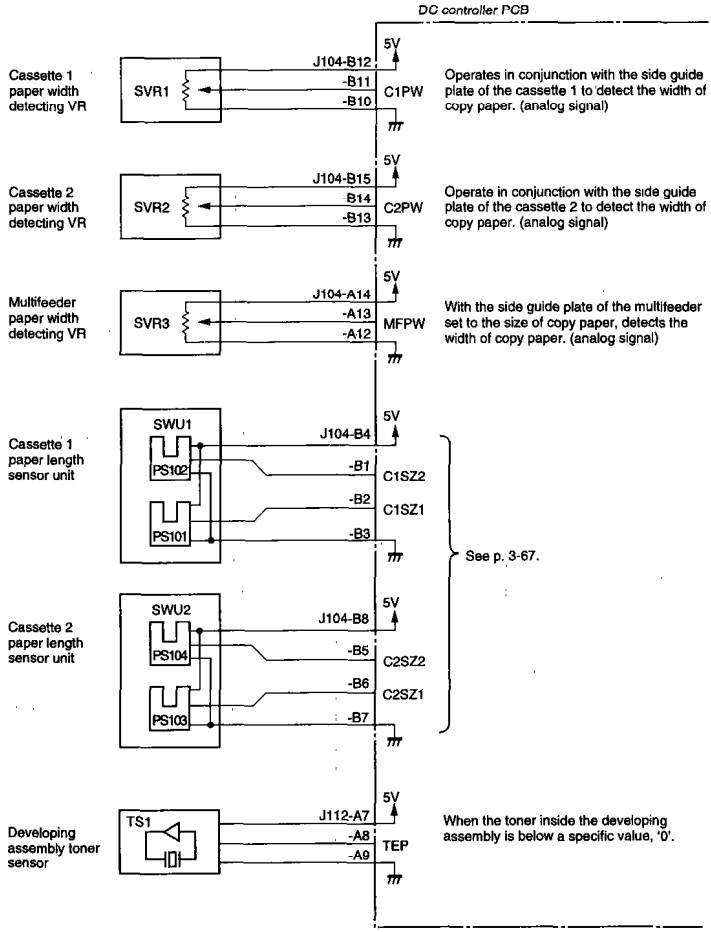


Figure 3-106

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D. Outputs from the DC Controller

1. Outputs from the DC Controller (1/5)

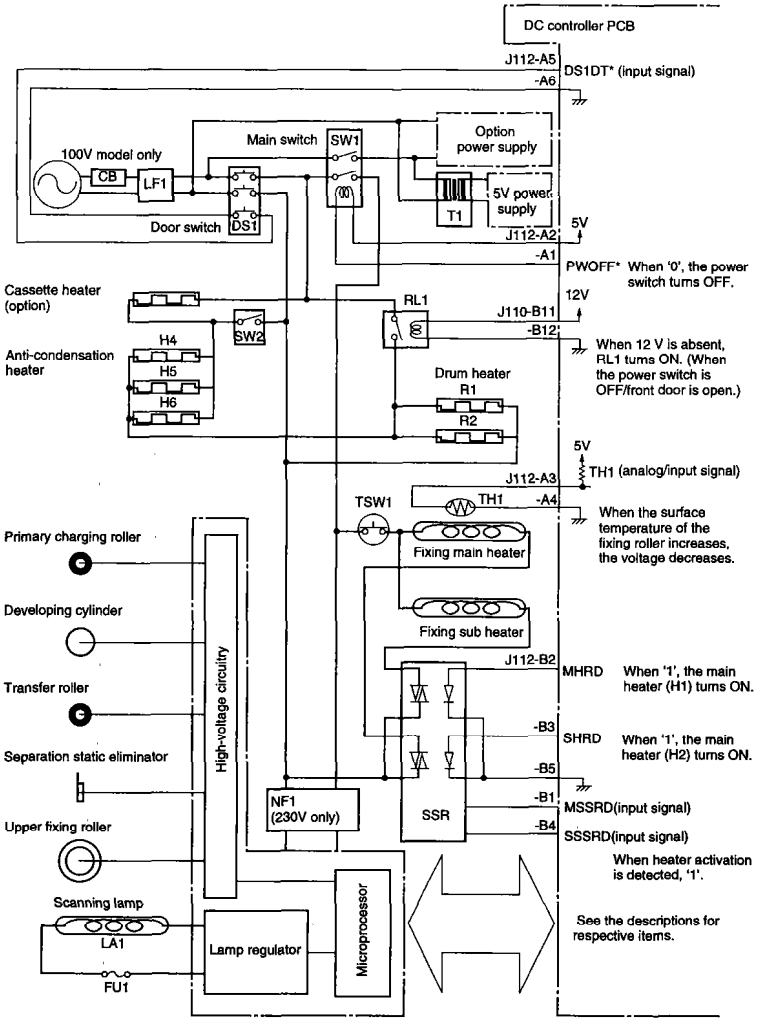


Figure 3-107

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2. Outputs from the DC Controller (2/5)

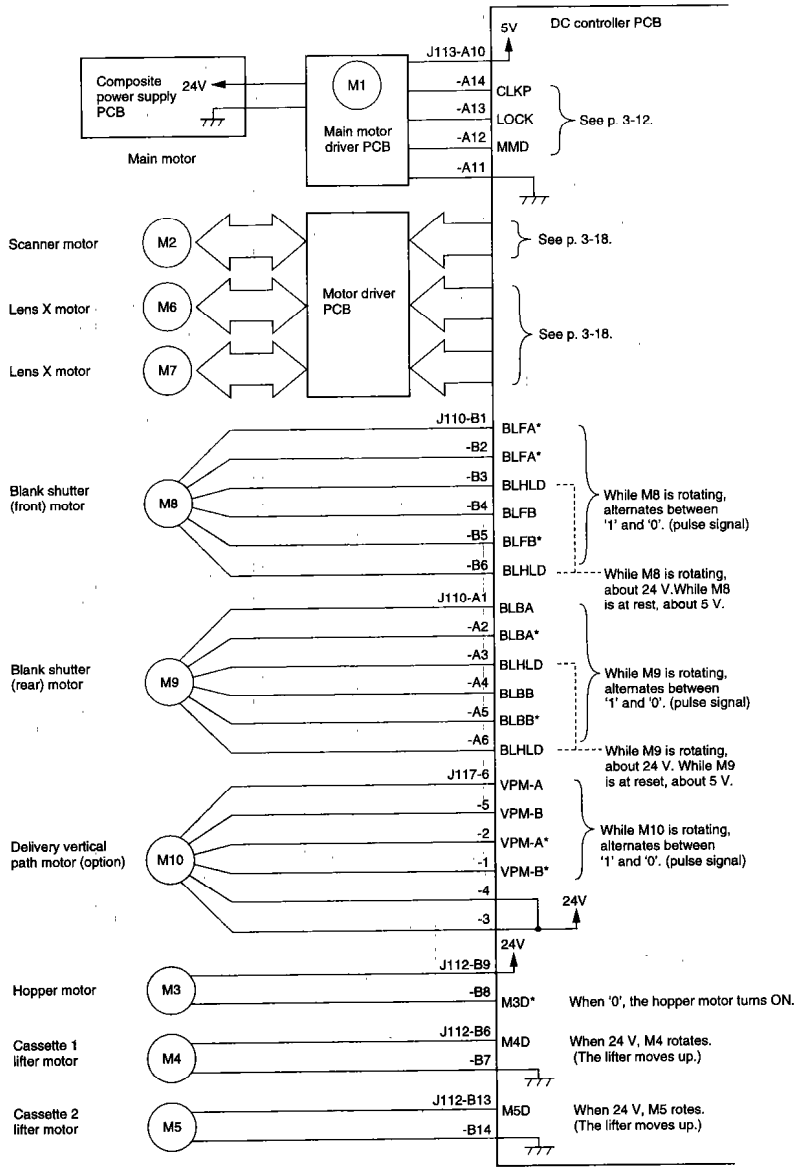


Figure 3-108

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3. Outputs from the DC Controller (3/5)

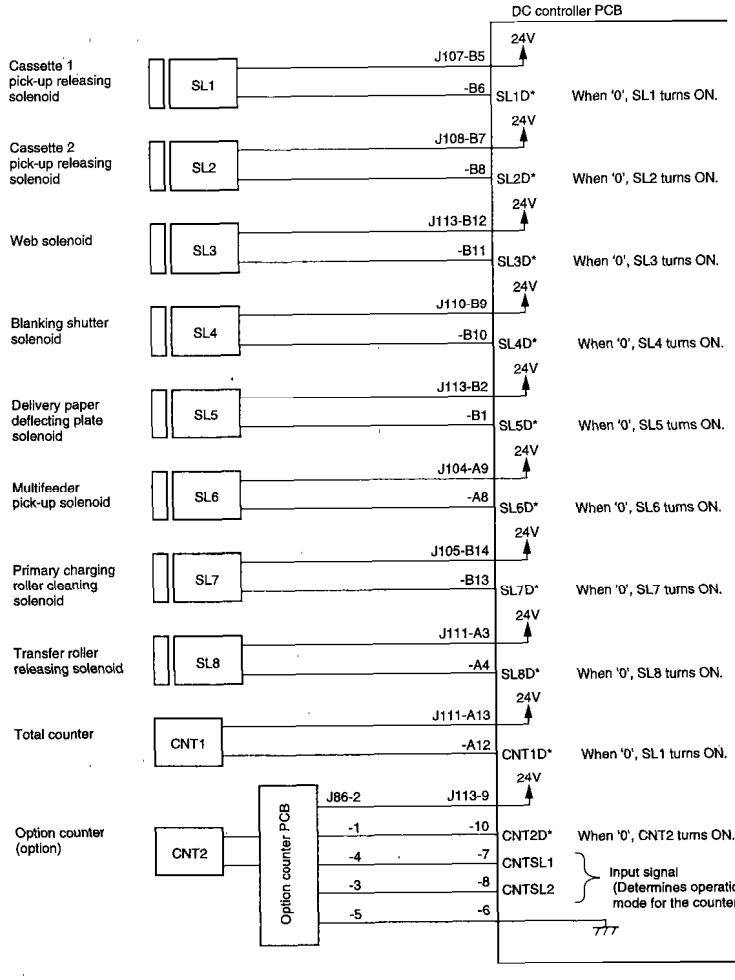


Figure 3-109

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4. Outputs from the DC Controller (4/5)

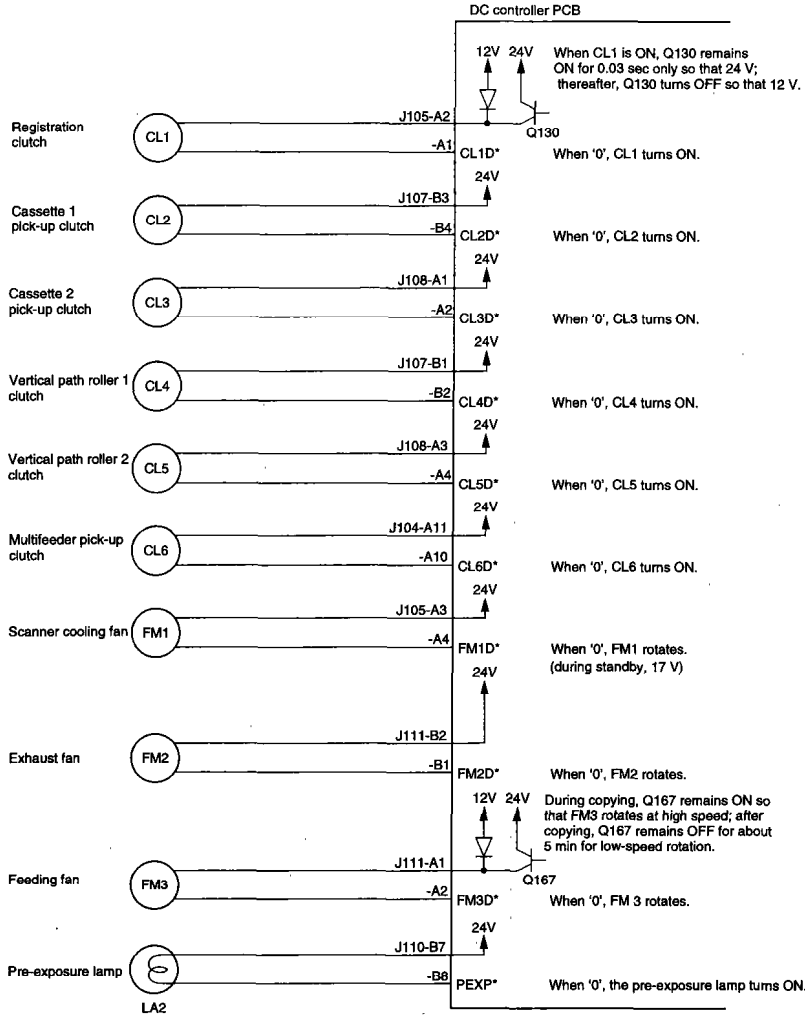


Figure 3-110

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5. Outputs from the DC Controller (5/5)

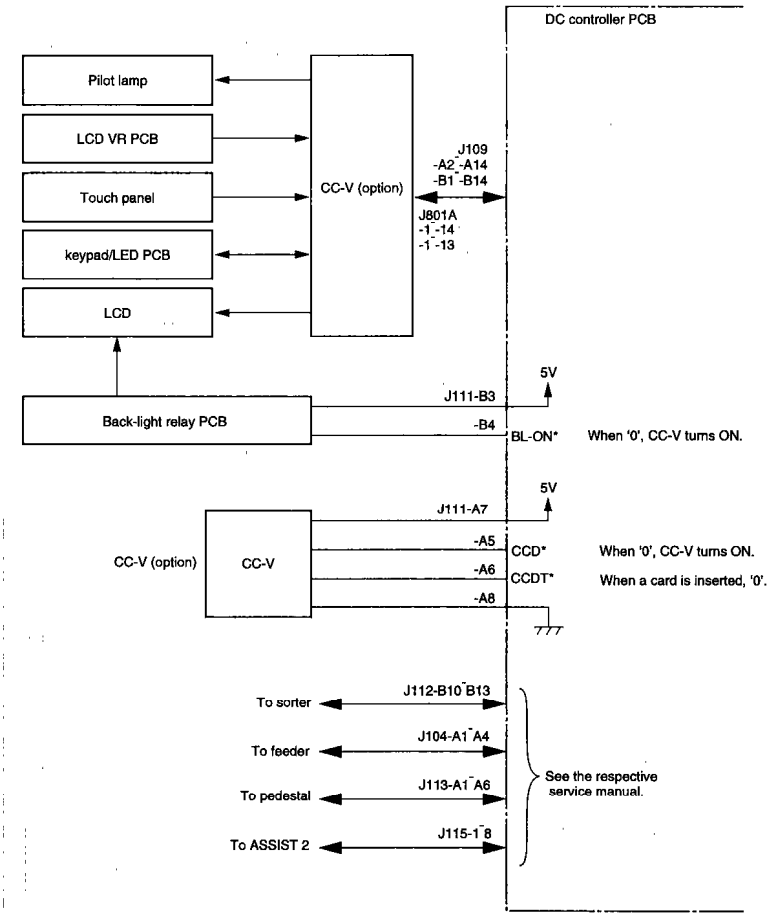


Figure 3-111

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E. Main Motor Control Circuit

1. Outline

Figure 3-112 shows the circuit used to control the main motor (M1), and the circuit has the following functions:

① Turns ON/OFF the main motor.
② Controls the main motor to a specific speed.

The main motor (M1) is a DC motor with a built-in clock pulse generator. When the motor rotates, as many clock pulse signals (MMCLK) as suited to the revolution of the motor are generated. The speed control circuit matches the frequency of these clock pulses and the phase of the frequency of the reference signal to control the main motor (M1) to a specific speed.

2. Operation

When the main motor drive signal (M1D) from the DC controller PCB goes '1', the drive circuit of the motor driver turns ON, causing the main motor (M1) to rotate at a specific speed.

While the main motor is rotating at a specific speed, the motor driver PCB sends the constant speed signal (LOCK=1) to the DC controller PCB. If, for some reason, fluctuations occur in the rotation of the main motor, the M1LOCK signal goes '0'.

If LOCK=0 remains for about 2 sec, the DC controller PCB identifies the condition as an error, stopping the main motor and indicating 'E010'.

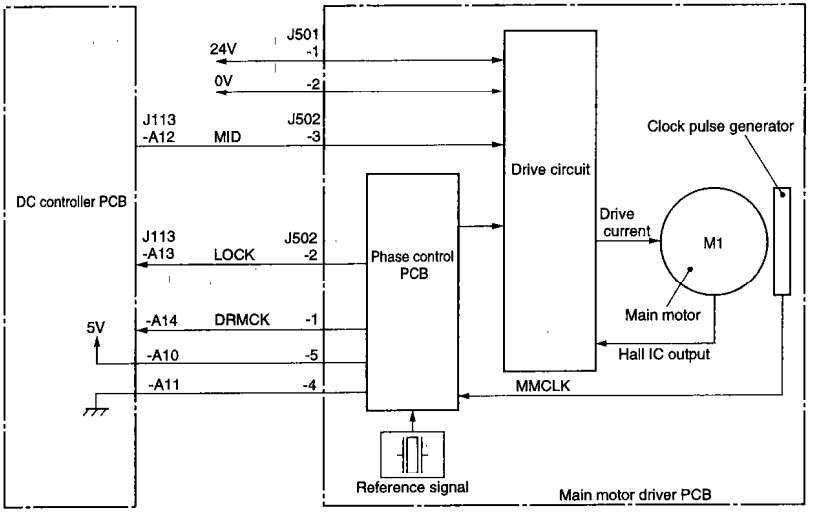
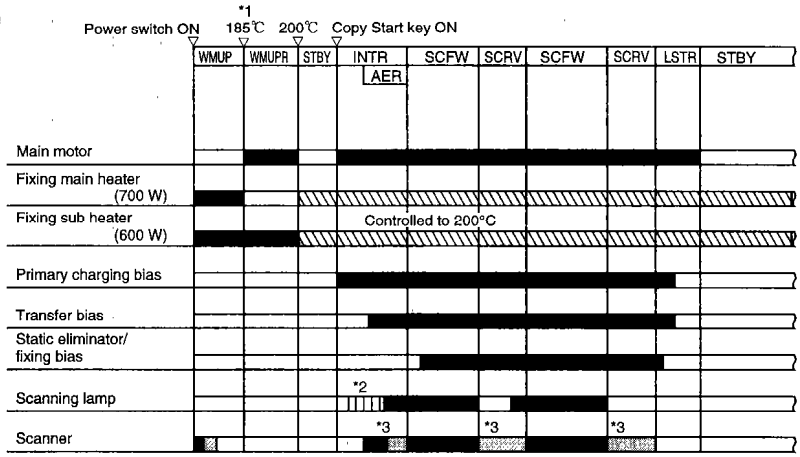


Figure 3-112

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F. Basic Sequence of Operations



*1: Fixing roller surface temperature.
*2: ON for AE only.
*3: Scanner reverse.

Figure 3-113

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Period		Purpose	Remarks
WMUP (warm-up)	From when the power switch is turned on until the temperature of the fixing roller reaches 185°C.	Until the fixing roller has heated.	The warm-up time varies depending on the temperature of the fixing roller.
WMUPR (warm-up rotation)	For about 2 sec after the temperature of the fixing roller has reached 185°C. (However, for about 20 sec if the room temperature is 10°C or less.)	Stabilizes the temperature of the fixing roller.	After WMUPR, the message on the display changes to "Ready to Copy."
INTR (initial rotation)	For at least 1.5 sec after the Copy Start key is pressed.	Stabilizes the sensitivity of the drum in preparation for copying.	
AER (AE rotation)		The scanner is moved forward about 70 mm to measure the density of the original.	In AE mode only.
SCFW (scanner forward)	While the scanner is moving forward. • The distance over which the scanner moves forward varies depending on the cassette size and the reproduction ratio. • The speed at which the scanner moves forward varies depending on the selected reproduction ratio.	The scanning lamp illuminates the original, and the reflected light is projected to the photosensitive drum through mirrors and lenses.	
SCRV (scanner reverse)	While the scanner is moving in reverse.	The scanner is returned to home position in preparation for the next copying run.	The registration signal is generated, and the copy paper is moved to the transfer assembly.
LSTR (last rotation)	From when SCRV ends until the copy paper has moved past the delivery sensor.	As post-processing, the charges on the surface of the photosensitive drum are removed.	Discharges the last copy.
STBY (standby)	From when LSTR ends until the Copy Start key is turned ON or the power switch is turned OFF.	Until the Copy Start key is pressed.	• In 2 min after the end of LSTR, the notations on the control panel change to standard mode. • If an original is set with auto start selected (WMUP period) and the Copy Start key is pressed, copying will start at the end of WMUPR.

Table 3-101

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II. EXPOSURE SYSTEM

A. Varying the Reproduction Ratio

The ratio in the axial direction of the photosensitive drum is varied by the lens drive system, and the ratio in the peripheral direction of the photosensitive drum is varied by the scanner drive system.
The lens drive system uses a zoom lens, and it varies the reproduction ratio in the axial direction of the photosensitive drum by changing the lens position and the focal distance.

The scanner drive system moves the No. 1 mirror relatively faster (Reduce) or slower (Enlarge) than the peripheral speed of the photosensitive drum, thereby varying the peripheral reproduction ratio.

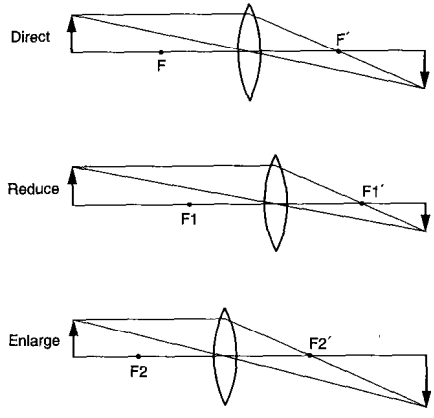


Figure 3-201

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B. Lens Drive System

1. Outline

Figure 3-202 shows the position of pick-up/feeding for copy paper in existing machines, while Figure 3-203 shows the position of pick-up/feeding in the NP6035.

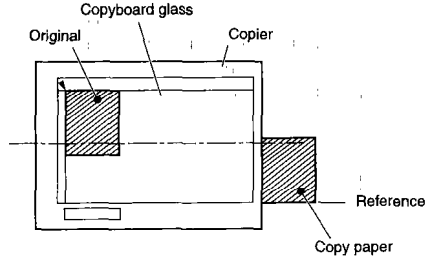


Figure 3-202 (existing machine; top view)

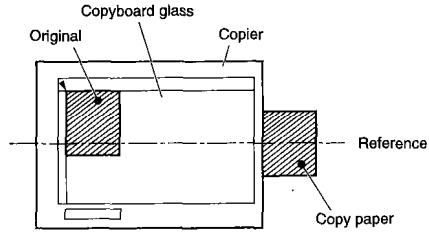


Figure 3-203 (NP6035; top view)

In existing machines, the feeding path for copy paper is in reference to the front, and such a way of feeding paper is called "front reference."

In the NP6035, on the other hand, the center of copy paper is matched with the center of its feeding path for pick-up/feeding, and such a way of feeding paper is called "center reference."

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2. Moving the Lens

The NP6035 picks up/feeds copy paper in center reference and sets originals in reference to the rear (when using the copyboard cover). For this reason, it is designed to move the lens in Y direction (vertical) even in Direct copying if the width of the copy paper is different from the width of the original.

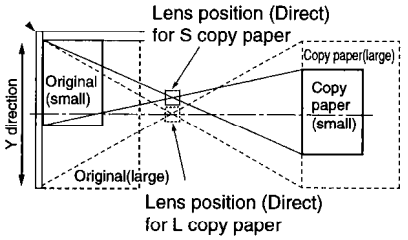


Figure 3-204 (top view)

The RDF or the ADF designed for the NP6035 sets originals in center reference; if the original and the copy are of the same size in Direct, the NP6035 does not move the lens in Y direction (vertical; Figure 3-205).

However, in Enlarge/Reduce or if the original and the copy are of different sizes, the NP6035 moves the lens in Y direction (vertical) so that the image on the copy will be located at the same position as when the copyboard cover is used.

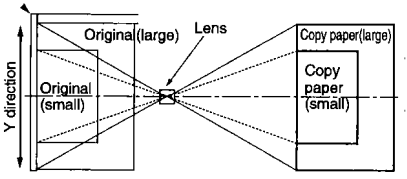


Figure 3-205 (top view)

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3. Moving the Lens

a. Moving the Lens in Y Direction (vertical)

The lens is mounted on a mobile lens stage which is moved in Y direction (vertically) by the rotation of the lens Y motor (M7).

b. Moving the Lens in X Direction (horizontal)

The lens is moved in X direction (horizontally) by the rotation of the lens X motor (M6) mounted to the back of the lens stage.

4. Lens Motor Driver Circuit

Both lens X motor (M6) and lens Y motor (M7) are 2-phase stepping motors and are controlled in the same way. (Here, the lens X motor is used for explanation.)

The motor is controlled by the two motor drive pulse signals (LEXA*, LEXB*) generated by the DC controller PCB. The direction of rotation of the lens X motor (M6) is controlled by varying the output timing of the motor drive signal (LEXA*, LEXB*).

The lens X motor is stopped by the lens X motor hold signal (LEXHLD) and kept stationary (braked) by applying a voltage lower than when the lens X motor is rotating.

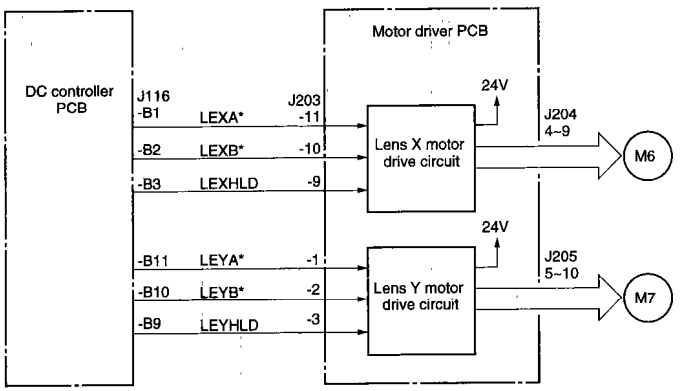


Figure 3-206

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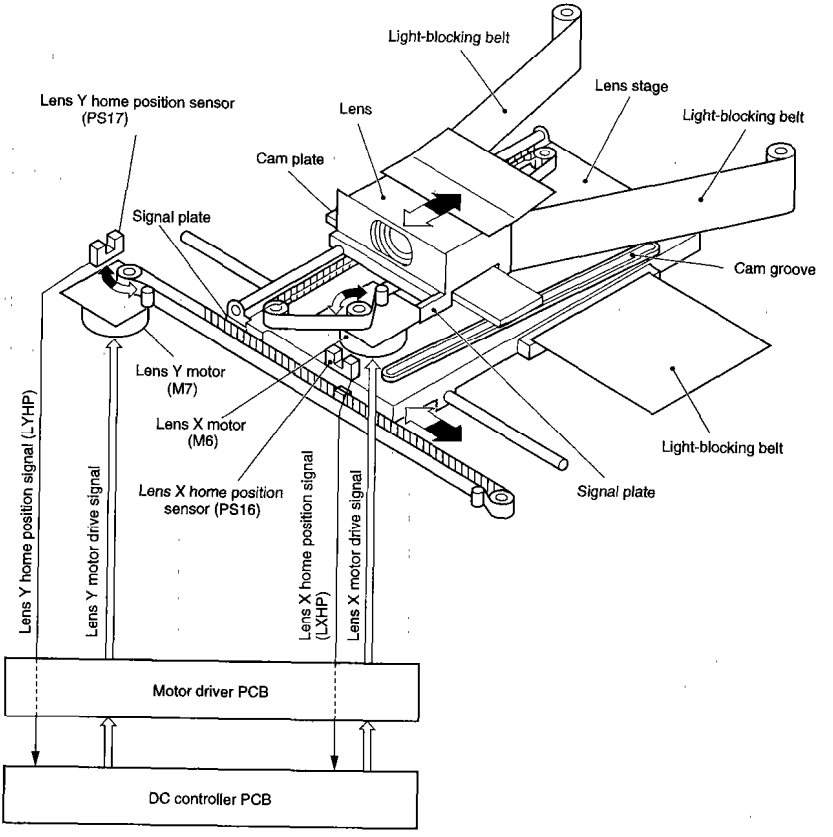


Figure 3-207

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5. Moving the Lens

- At Time of Power-On

  When the power switch is turned ON, the lens X motor (M6) rotates to move the lens toward the lens X home position sensor (PS16).

  Then, the lens Y motor (M7) rotates so that the lens moves toward the lens Y home position sensor (PS17).

  When the signal plate mounted to the lens case blocks the lens X home position sensor (PS16), the X motor rotates in reverse; when the signal plate mounted to the lens stage blocks the lens Y home position sensor (PS17), the lens Y motor (M7) rotates in reverse.

  Each motor stops when the lens is set to Direct position for A4 paper width (period I of Figure 3-208).

- During Copying

  The microprocessor remembers the location of the lens in Direct and A4 paper width position. When a change is made to the reproduction ratio, it immediately applies drive pulses to the lens X motor (M6)/Y motor (M7) to re-position the lens (period II in Figure 3-208).

  The lens Y motor (M7) rotates after a specific original size and a specific copy size have been determined in response to a press on the Copy Start key (period III in Figure 3-208).

- Moving the Lens

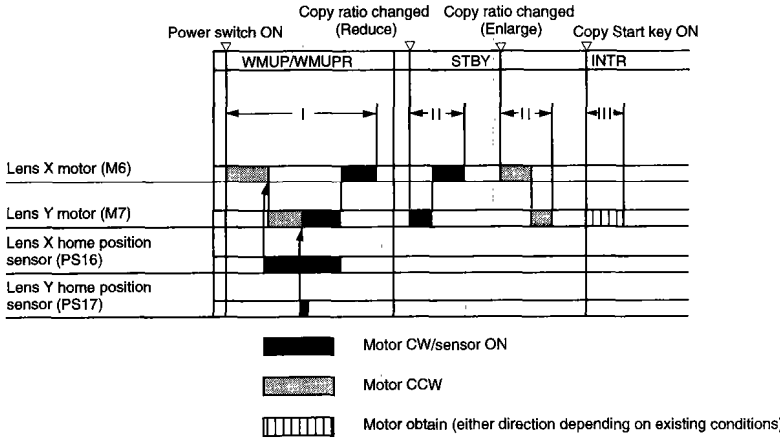


Figure 3-208

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6. Focusing

The NP6035's zoom lens unit consists of multiple lenses.

The zoom lens focuses on images with the help of the cam plate mount inside the zoom lens unit.

The cam plate moves along the cam groove in the lens stage and focuses on images by varying the distance between multiple lenses.

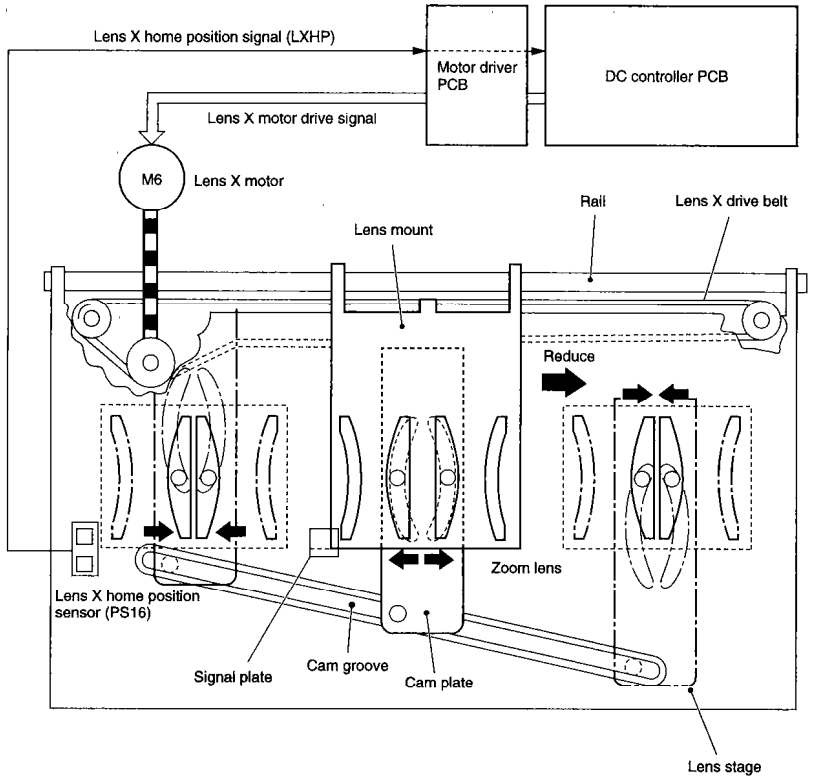


Figure 3-209

C. Moving the Scanner

1. Outline

The scanner is driven by the scanner motor (M2). The scanner motor changes its direction of rotation to move the scanner forward and in reverse. The speed of rotation when moving the scanner forward varies continuously according to the selected reproduction ratio; however, the speed of rotation when moving the scanner in reverse remains a specific value (about 5 times when moving the scanner forward) *regardless of the selected reproduction ratio.*

The distance over which the scanner travels varies according to the length of copy paper and the reproduction ratio.

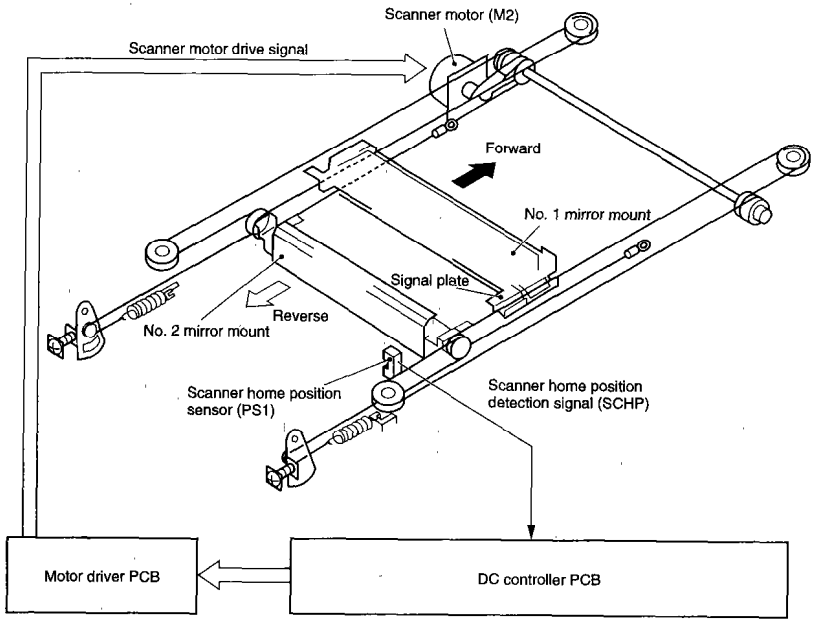


Figure 3-210

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2. Scanner Motor Control Circuit

The scanner motor (M2) is a 5-phase control stepping motor and is controlled by 12 motor drive signals (SCT1 through SCT10, OMDOWN 1/2) generated by the DC controller.

The direction of rotation and the speed of rotation are changed by changing the output timing of the motor drive signal and the appropriate settings.

To keep the motor stationary, a current smaller than during rotation is applied by way of applying the brakes.

The current value is controlled based on combinations of OMDWN 1/2 signals (Table 3-201).

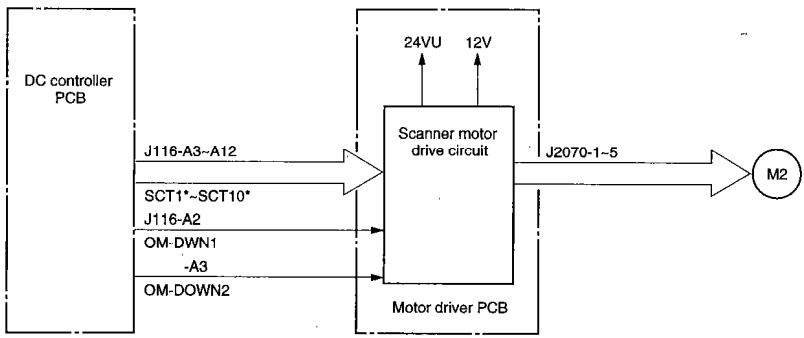


Figure 3-211

Switching Scanner Motor Current

Signal	SCFW	SCRV	Stationary
OMDWN1	1	0	0
OMDWN2	1	0	0
Setting	0.85A	1.2A	0.18A

Table 3-201

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3. Relationship between Scanner Sensor and Signals

Scanner sensor	Signal	Scanner		Remarks
		Forward	Reverse	
Scanner home position	SCHP			• Registration clutch ON
				• In 0.1 sec, scanner reverse OFF

Table 3-202

4. Sequence of Scanner Movements (Enlarge/Reduce)

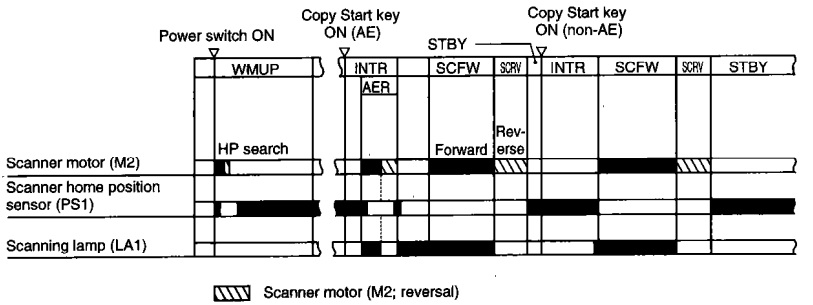


Figure 3-212

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5. Sequence of Scanner Movements (page separation mode, 2 copies)

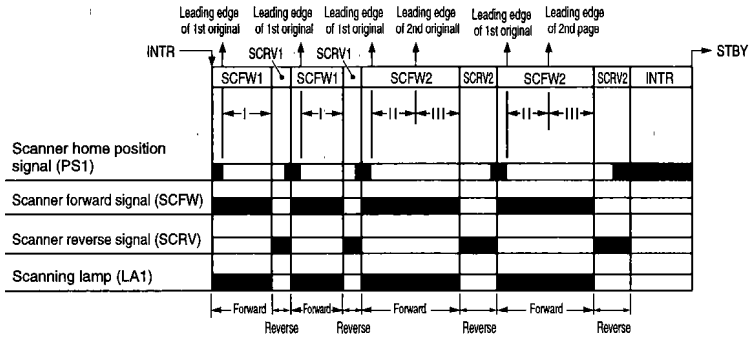


Figure 3-213

For I, II, and III shown in Figure 3-213, control is with reference to the leading edge of the 1st original (falling edge of PS1).

I: The distance from the leading edge of an original over which the scanner moves is determined by the selected reproduction ratio and cassette size as in the case of normal copying.

II: More or less the same as I; however, if the distance over which the scanner travels is longer than 210 mm, 210 mm will be used as the leading edge of the 2nd original.
If it is shorter than 210 mm, the point at which the scanner reverses in I will be used as the leading edge of the 2nd original.

III: The same as I.

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Reference:

The distance over which the scanner moves (maximum) from the leading edge of an original (10 mm forward from the falling edge of PS1) is 432 mm; further, the distance is limited in relation to the selected reproduction ratio. In the case of 200% enlargement, the scanner may move up to 216 mm.

Mode	Original size used as reference
With feeder (RDF/ADF) in use	Original size detected by feeder
Original frame erase mode	Original size set by user

Table 3-203

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D. Controlling the Original Size Detection Mechanism

1. Outline

The NP6035 provides auto paper selection, auto reproduction ratio selection, image composition reduction, and image composition enlargement functions, all necessitating the identification of the size of the original to be used.

To identify sizes, as many as four original size sensors are mounted under the copyboard glass as shown in Figure 3-214. When the copyboard cover is brought down, the presence of an original is checked in relation to each of these sensors, thereby identifying the original as A3, B4, A4, or B5 (default sizes).

The original size sensor turns on its LED to shine light against an original, detects the reflected light by its phototransistor, and sends the result to the DC controller circuit.

Originals fed from the document feeder (option) are checked by the document feeder, which sends the result to the NP6035. When the document feeder is used, the NP6035 uses such data for auto paper selection, auto reproduction selection, image composition reduction, and image composition enlargement.

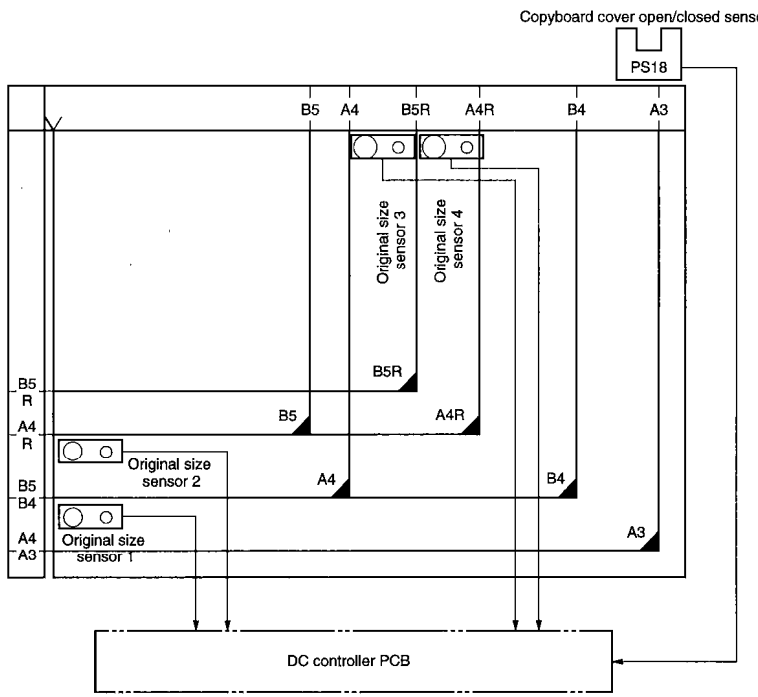


Figure 3-214

2. Operation

When the copyboard cover is brought down to about 30°, the copyboard cover open/closed sensor (PS18) turns ON, i.e., the light-blocking plate blocks PS18.

After PS18 has turned ON, the output level of each size sensor is read for 15 sec or until the Copy Start key is pressed at intervals of about 0.1 sec. If the output level remains the same during the period, the NP6035 assumes the presence of an original at the respective sensors, ultimately identifying the size of the original according to Table 3-203.

Although this way of identification can detect the size of a black original, the output level of the sensor will not change in the following cases:

a. Black original of A3
b. Book original (the thickness prevents changes in level)

Reference:

a or b can cause wrong detection of the size.

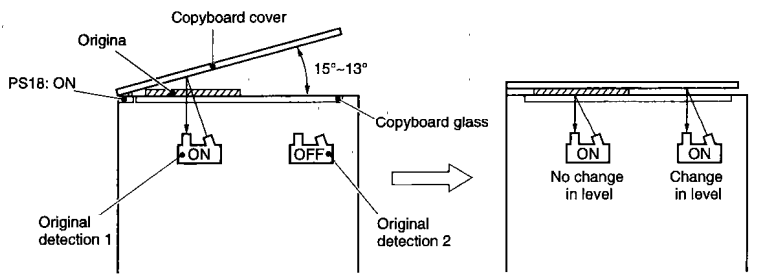


Figure 3-215

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3. Identifying the Size of Originals

Based on combinations of the states of the original size sensors, the DC controller circuit identifies the size of each original as shown in Table 3-204.

No change: The output of the sensor when the copyboard cover is brought down to 15° through 30° and the output 15 sec thereafter are the same (detecting an original).

Change: The output of the sensor when the copyboard cover is brought down to 15° through 30° and the level when it is fully closed are different (detecting no original).

Original size	Original size sensor			
	1	2	3	4
A3	No change	No change	No change	No change
B4	Change	No change	No change	No change
A4R	Change	Change	No change	No change
A4	No change	No change	Change	Change
B5	Change	No change	Change	Change
B5R	Change	Change	No change	Change
No	Change	Change	Change	Change

Table 3-204 (A/B-configuration)

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4. Identifying the Size of Originals by the Document Feeder

a. Outline

The document feeder (option) identifies the size of an original in response to commands from the NP6035 as follows:

① If the installed cassette is AB-configured, the NP6035 instructs the document feeder to check for AB-configured originals.

② If the installed cassette is Inch-configured, the NP6035 instructs the document feeder to check for Inch-configured originals.

The DF identifies the size of an original as above; however, some part of an image may be missing on copies if the original and the copies are of different sizes.

Further, since the document feeder designed for the NP6035 uses center reference when setting originals on the copyboard, the non-image area differs from that in book mode (original rear reference).

EX A4 Original, LTR Copy

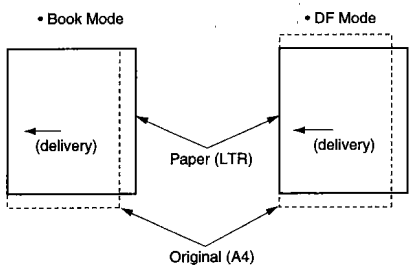


Figure 3-216

- If the original is A4 and the copy is LTR, the bottom of the original in book mode and the top and the bottom of the original in DF mode will be missing.

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EX A4 Original, Enlarge, LTR Copy (DF mode)

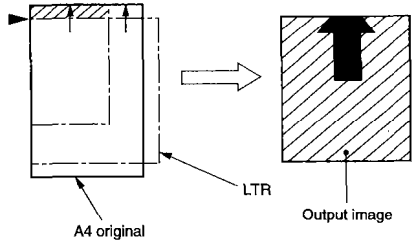


Figure 3-217

- The original will be identified as LTR. Since enlargement will be with reference to the triangle in Figure 3-217 (▶), the shaded area will be missing.

EX LTR Original, Enlarge, A4 Copy (DF mode)

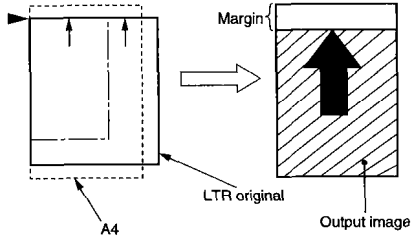


Figure 3-218

- The original will be identified as A4. Since the enlargement will be with reference to the triangle in Figure 3-218 (▶), the margin at the top of the copy will increase.

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III. IMAGE FORMATION SYSTEM

A. Outline

The NP6035's image formation system is constructed as shown in Figure 3-301 and provides the following functions:

- Controls the scanning lamp
- Controls the primary charging roller bias
- Controls the transfer roller bias
- Controls the static eliminator/fixing roller bias
- Controls the developing bias
- Controls the blank exposure lamp

The NP6035's composite power supply PCB is equipped with a microprocessor (Q401) for the above functions.

The microprocessor master (IC110) on the DC controller PCB and the microprocessor (Q401) on the composite power supply PCB exchange data over an 8-bit data line, 3-bit command line, and 2-bit communication check line.

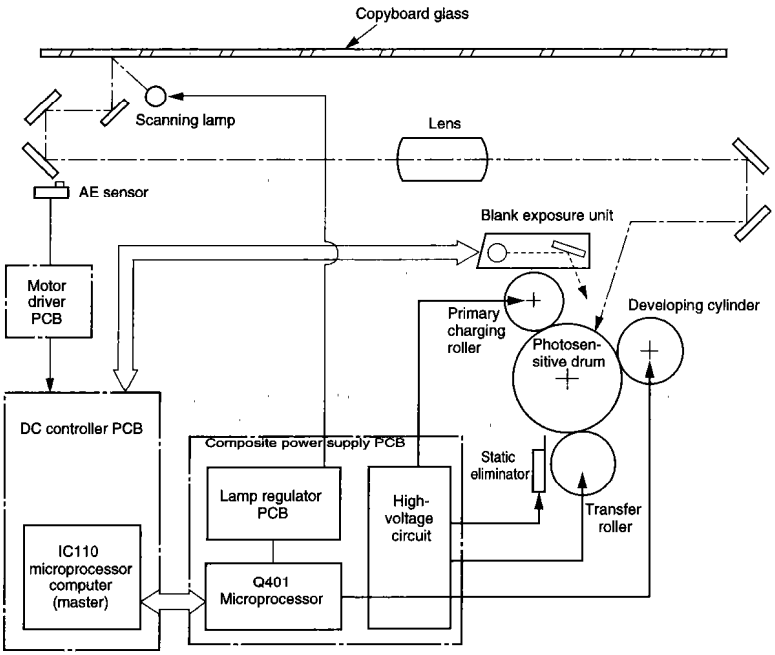
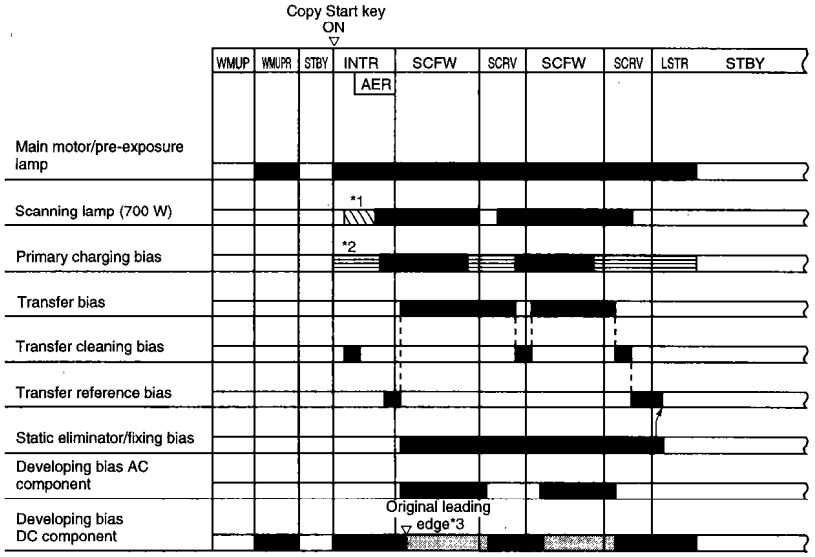


Figure 3-301

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B. Basic Sequence of Operations (image formation)



*1: ON only in AE.
*2: Primary charging output corresponding to transfer cleaning bias (p. 3-34).
*3: Varies according to the setting of the Copy Density key and the AE sensor output.

Figure 3-302

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C. Controlling the Intensity of the Scanning Lamp

1. Outline

Figure 3-303 shows the circuit used to control the intensity of the scanning lamp, and the circuit has the following functions:

- Turns ON/OFF the scanning lamp.
- Detects whether the scanning lamp is ON or not.
- Controls the intensity of the scanning lamp.

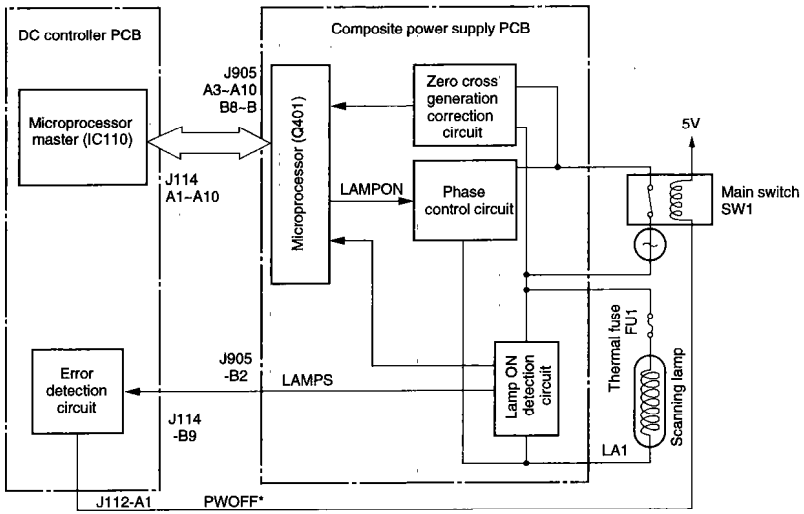


Figure 3-303

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2. Turning ON/OFF the Scanning Lamp and Controlling the Intensity

The microprocessor master (IC10) on the DC controller PCB controls the microprocessor (Q401) on the composite power supply PCB to generate the LAMPON signal (pulse), thereby turning on the scanning lamp.

The supply voltage to the scanning lamp is varied between 58 and 80 V by changing the timing at which the LAMPON signal is generated, thereby controlling the intensity.

- Scanning Lamp ON Voltage 80 V

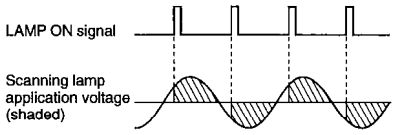


Figure 3-304

- Scanning Lamp ON Voltage 58 V

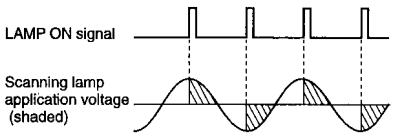


Figure 3-305

3. Detecting the Activation of the Scanning Lamp

When the scanning lamp (LA1) is ON, the lamp ON detection circuit turns on to send the LAMPS* signal to the error detection circuit of the DC controller PCB.

The DC controller PCB identifies the state of the scanning lamp in reference to the LAMPS* signal; when it assumes an error, it indicates 'E220' or executes error auto power-off.

4. Scanning Lamp Intensity Auto Correction Control (ALVC control)

The NP6035 is equipped with a mechanism (ALVC control) which automatically controls the ON voltage of the scanning lamp to compensate for any deterioration of the photosensitive drum and changes in copy density occurring as a result of friction.

5. Protection Mechanism

A thermal fuse is used to prevent the scanning lamp to turn on wrongly. If overheating occurs because of a short circuit around the scanning lamp (about 104°C or more), the thermal fuse (FU1) blows to cut power to the scanning lamp.

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D. Controlling the Primary Charging Roller Bias

1. Outline

Figure 3-306 shows the circuit used to control the application voltage of the primary charging roller, and the circuit has the following functions:

- Turns ON/OFF the primary charging roller bias.
- Controls the primary charging roller bias to a specific voltage.
- Switches the application voltage level of the primary charging roller bias.
- Controls the application voltage of the primary roller bias and controlling the scanning lamp ON voltage level correction.

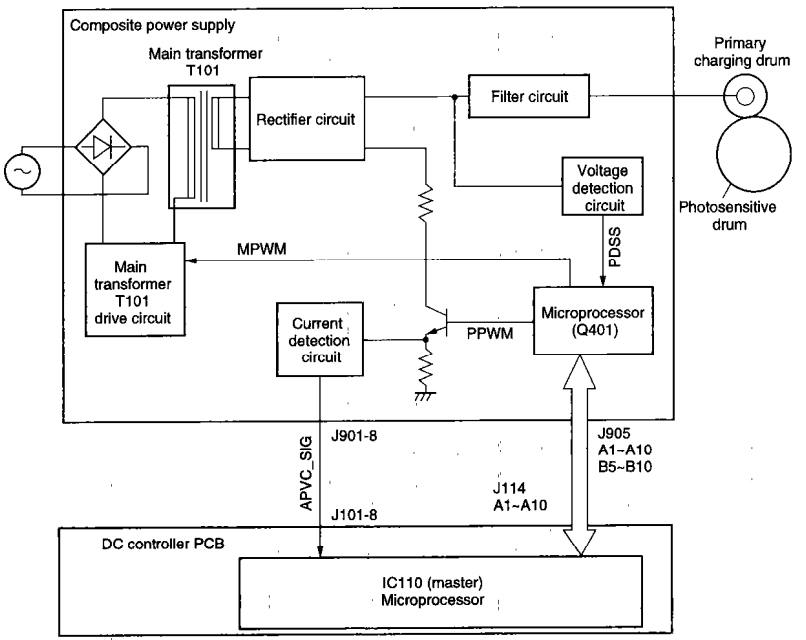


Figure 3-306

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2. Turning ON/OFF the Primary Charging Roller Bias

The microprocessor master (IC110) on the DC controller PCB is controlled so that the microprocessor (Q401) on the composite power supply PCB generates the PPWM signal (pulse), which causes the secondary side of the main transformer (T101) to turn ON to apply the primary charging roller bias.

The main transformer (T101) is driven by the drive signal (MPWM) from the microprocessor (Q401). In addition to the aforementioned uses, the main transformer (T101) is used as the transformer of the DC power supply and high-voltage loads.

3. Controlling the Primary Charging Roller Bias to a Specific Voltage

While a bias voltage is applied to the primary charging roller, the microprocessor (Q401) on the composite power supply PCB takes in the PDSS signal (analog) from the voltage detection circuit to control the PPWM signal so that the output voltage remains constant.

4. Switching the Primary Charging Roller Bias Application Voltage Level

The NP6035 applies a cleaning bias to the transfer roller so as to clean the roller during initial rotation (INTR) and between sheets (SCRV).

To increase the cleaning efficiency by the cleaning bias and to prevent drum memory caused by the bias, a sheet-to-sheet primary charging roller bias is also applied during initial rotation and between sheets.

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5. Controlling the Application Voltage Level of the Primary Charging Roller Bias and the Scanning Lamp ON Voltage Level Auto Correction (APVC, ALVC control)

Changes in static latent images can lead to changes in copy images. Such changes, in turn, are caused by:

- changes in the drum sensitivity.
- changes in the charging of the primary charging roller.

All these occur as a result of deterioration in the environment of the site (temperature, humidity) or parts, wear, or dirt.

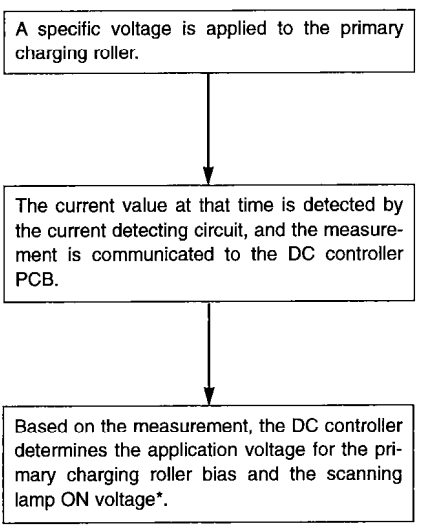
In the case of the NP6035, the light area potential (V_L) and the dark area potential (V_D) tend to increase. To compensate for such increases, the NP6035 corrects the primary charging roller bias application voltage level (APVC control) and, at the same time, corrects the scanning lamp ON voltage level (ALV), thereby ensuring a specific light area potential (V_L) and dark area potential (V_D) at all times.

Such correction is made under the following conditions and in the way shown at such times as indicated:

■ Conditions
- When the main switch is turned on and, in addition, if the temperature of the fixing assembly is 100°C or less.
- When 'APCV_MR' is executed in service mode (*4*).
- Timing

■ Timing
- During WMUPR.

■ Flow


A specific voltage is applied to the primary charging roller.
The current value at that time is detected by the current detecting circuit, and the measurement is communicated to the DC controller PCB.
Based on the measurement, the DC controller determines the application voltage for the primary charging roller bias and the scanning lamp ON voltage*.

*Control is executed in reference to the return current stored in the DC controller PCB in advance and the correction table for ON voltage/application voltage.

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E. Controlling the Transfer Roller Bias

1. Outline

The NP6035 is designed for a direct transfer method for transfer using a charging roller, requiring bias control different from the existing machines (using corona charging).

The transfer roller bias may be either of the following tree types whose functions and output timing are as shown:

① **Transfer Bias**

This bias corresponds to the transfer bias of the existing machines, and it is a negative voltage (constant voltage, DC).

② **Cleaning Bias**

Since the NP6035 uses a direct transfer method, toner from the photosensitive drum can at times stick to the photosensitive drum because of a jam.

To remove such toner, the NP6035 applies a positive voltage (constant voltage, DC) at the following timing to return the toner from the transfer roller to the photosensitive drum:

■ Output Timing of the Cleaning Bias

- During initial rotation after the Copy Start key is pressed.
- Part of the period in which the scanner is moving in reverse.
- Part of last rotation.
- When TRR_CL (*4* in service mode) is being executed.

③ **Reference Bias**

The resistance of the transfer roller changes because of changes in the environment and deterioration of the transfer roller, possibly affecting the transfer efficiency.

To limit the changes in image quality caused by changes in transfer efficiency, the NP6035 corrects the application voltage level of the transfer bias.

The reference bias (constant current, DC) is the bias applied each time the Copy Start key is pressed to determine the correction value for the purpose.

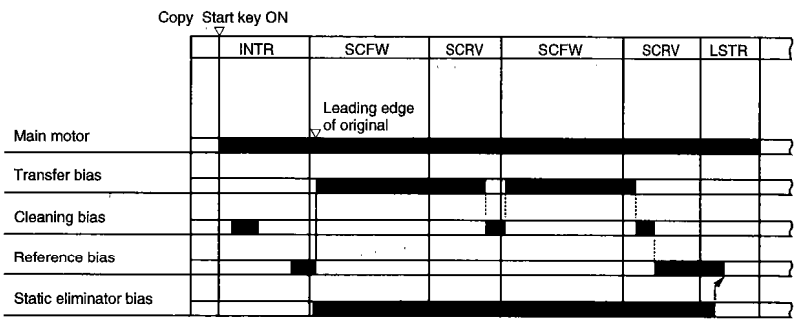


Figure 3-307

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Figure 3-308 shows the circuit used to control the foregoing three biases, and the circuit has the following functions:

- Turns ON/OFF the transfer roller bias.
- Controls the transfer bias to a constant voltage.
- Corrects the transfer bias voltage level.
- Detects errors in the transfer bias.

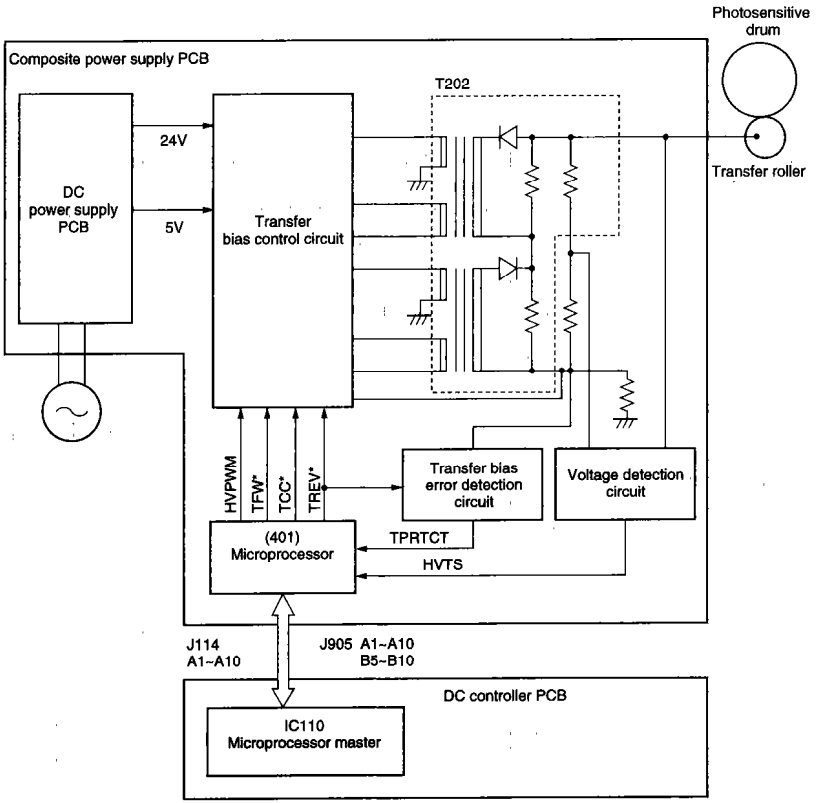


Figure 3-308

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2. Turning ON/OFF the Transfer Roller Bias

The microprocessor master (IC110) on the DC controller PCB controls the microprocessor (Q401) on the composite power supply PCB so that it sends four types of signals to the transfer bias control circuit. The type of bias to be applied is determined based on combinations of these signals. (Table 3-301)

	HVPWM	TFW	TREW	TCC
Transfer bias	ON (pulse)	ON	OFF	OFF
Cleaning bias	OFF	OFF	ON	OFF
Reference bias	OFF	ON	OFF	ON

Table 3-301

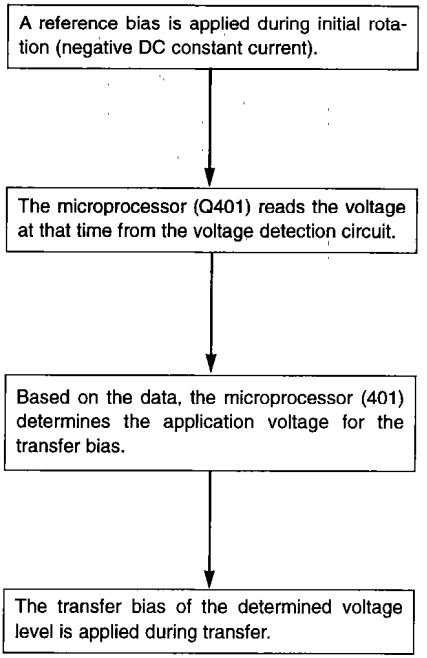
3. Controlling the Transfer Bias to a Constant Voltage

While transfer bias is being generated, the microprocessor (Q401) on the composite power supply PCB takes in the HVTS signal (analog) from the voltage detection circuit to control the HVPWM signal so as to keep the application voltage at a specific level.

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4. Correcting the Transfer Bias Voltage Level (ATVC control)

The NP6035 automatically controls the application voltage level for the transfer bias to compensate for changes in the transfer efficiency caused by changes in the environment or deterioration of the transfer roller (ATVC control) as follows:


A reference bias is applied during initial rotation (negative DC constant current).
The microprocessor (Q401) reads the voltage at that time from the voltage detection circuit.
Based on the data, the microprocessor (401) determines the application voltage for the transfer bias.
The transfer bias of the determined voltage level is applied during transfer.

The above control is executed once during initial rotation after a press on the Copy Start key so that the application voltage will not change during continuous copying.

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F. Controlling the Static Eliminator Bias/Fixing Bias

1. Outline

Figure 3-309 shows the circuit used to control the static eliminator bias and the fixing bias, and the bias has the following functions:

- Turns ON/OFF the static eliminator bias/fixing bias and controls the voltage to a specific level.
- Switches the static eliminator bias/fixing bias voltage level.

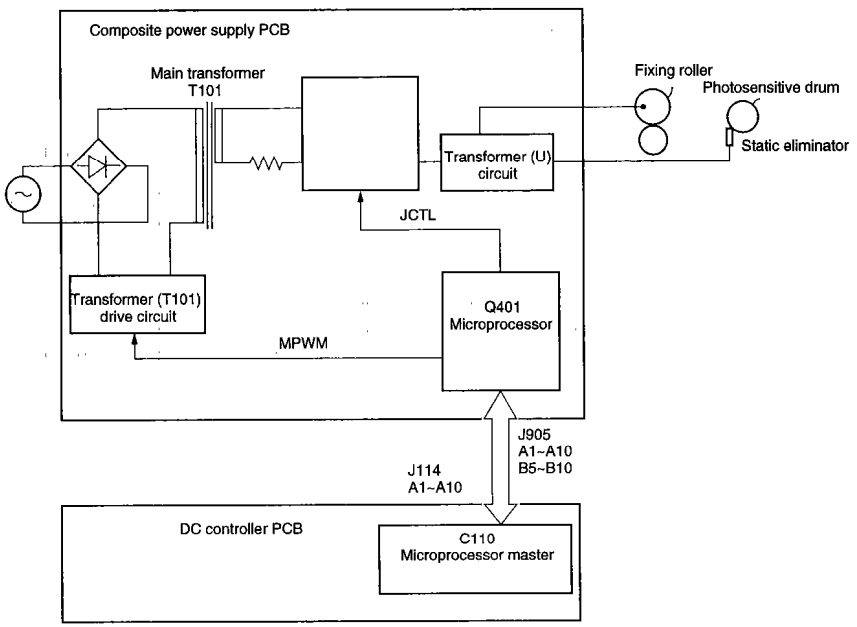


Figure 3-309

2. Turing ON/OFF the Static Eliminator Bias/Fixing Bias and Switching the Level

The microprocessor master (IC110) on the DC controller PCB controls the microprocessor (Q401) on the composite power supply PCB so that it generates the JCTL signal (analog signal), thereby causing the secondary side of the main transformer (T101) to turn ON to apply static eliminator bias and fixing bias.

The application voltage level to the static eliminator is switched by changing the voltage of the JCTL signal. (See Table 3-302 for conditions used and the application voltage.)

Condition	Voltage
One-sided copying, 1st side of two-sided/overlay copying	about 3.0 kV
2nd side of two-sided/overlay copying	4.0 kV

Table 3-302

The main transformer (T101) is driven by the drive signal (MPWM) from the microprocessor (Q401). In addition to the foregoing functions, the main transformer (T101) is also used for the DC power supply and high-voltage loads.

The microprocessor (IC110) on the DC controller PCB and the microprocessor (Q401) on the composite power supply PCB exchange data over an 8-bit signal line and a 3-bit command line.

3. Ensuring Separation of Thin Paper

Thin paper tends to fail to separate under certain environmental conditions.

If such is the case, the application voltage to the static eliminator may be controlled to 4.0 kV at all times to ensure separation from the drum using 'SPCL_PPR' in service mode (*5*; see the Service Handbook).

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G. Controlling the Developing Bias

1. Outline

Figure 3-310 shows the circuit used to control the developing bias, and the circuit has the following functions:

- Turns ON/OFF the AC component of the developing bias.
- Turns ON/OFF the DC component of the developing bias.
- Controls the DC component of the developing bias to a specific voltage level.
- Controls the DC component of the developing bias to a specific voltage.

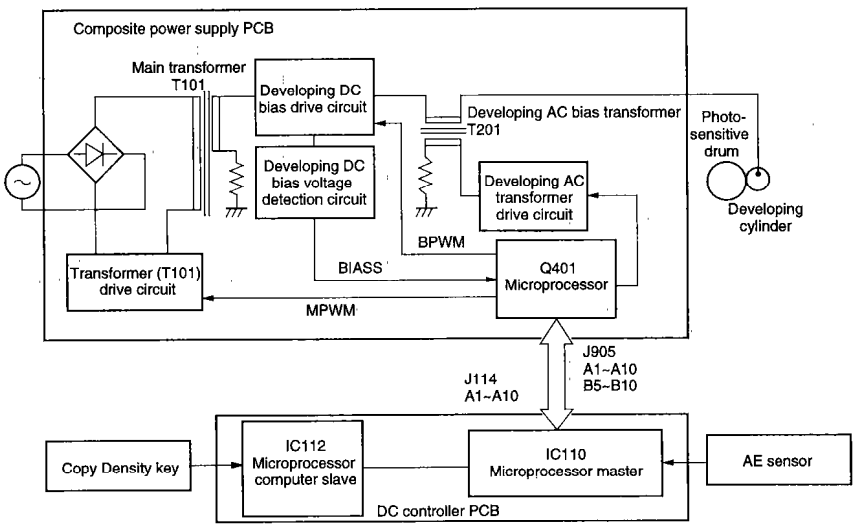


Figure 3-310

2. Turning ON/OFF the Developing Bias and Controlling the Voltage to a Specific Level

The microprocessor (IC110) on the DC controller PCB controls the microprocessor (Q401) on the composite power supply PCB so that it generates the BPWM signal (pulse), causing the secondary side of the main transformer (T101) to turn ON to apply the developing bias DC component.

While the developing bias DC component is being applied, the application voltage level is read in the form of the BIASS signal (analog) from the developing DC bias voltage detection circuit so that the output voltage will always be a specific level.

The main transformer (T101) is driven by the drive signal (MPWM) from the microprocessor (Q401). In addition to the foregoing uses, the main transformer (T101) is also used for the DC power supply and other high-voltage loads.

3. Controlling the Developing Bias DC Component to a Specific Level

The NP6035 changes the voltage level of the developing bias DC component according to the following:

- Setting of the Copy Density key.
- Output of the AE sensor.

The output timing of the BPWM signal is changed so that the voltage of the developing bias DC component will change between -60 V and -600 V (effective value).

4. Turning ON/OFF the Developing Bias AC Component

The microprocessor master (IC110) on the DC controller PCB controls the microprocessor (Q401) on the composite power supply PCB so that it generates the ACBIAS signal (pulse),turning ON the developing bias AC component formation transformer (T201) so that the ADC component of the developing bias will be added to the DC component for application.

Application frequency: about 2400 Hz
Application voltage: about 1300 Vp-p

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H. Measuring the Density of Originals

1. Outline

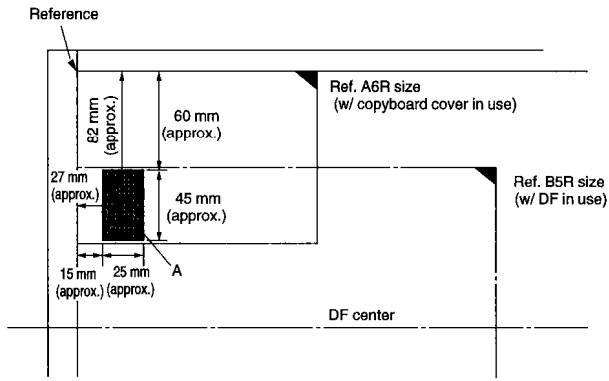
The NP6035 is equipped with an automatic density adjustment (AE) function used to control the DC component of the developing bias according to the density of originals. The AE function changes the DC component of the developing bias so as to ensure copies free of fogging as long as the original is more or less even in density.

The DC component controlled in AE mode is indicated in the copy density indicator on the control panel.

2. Control Method

The scanner is moved forward about 70 mm during initial rotation (INTR), and the scanning lamp (LA1) is turned ON at a specific intensity to illuminate the original.

At this time, the intensity of the reflected light in the area shown in Figure 3-311 is detected by the AE sensor (photodiode), and the measurement is communicated to the DC controller PCB.



Note: A represents the area of AE measurement.

Figure 3-311

The DC controller PCB uses the measurement input to compute the optimum developing bias for copying and sends the result of the microprocessor (Q401) on the composite power supply PCB. Figure 3-312 shows the changes in the developing bias DC component occurring as a result of changes in the density of originals.

The graph is based on a level of exposure which provides optimum density without fogging when a newspaper or the Test Sheet is copied.

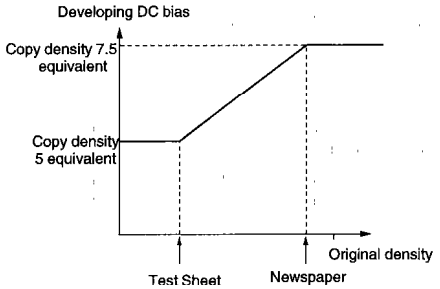


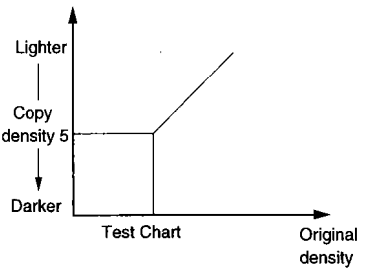
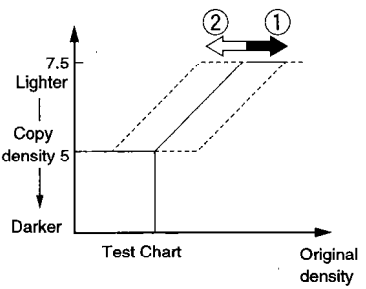
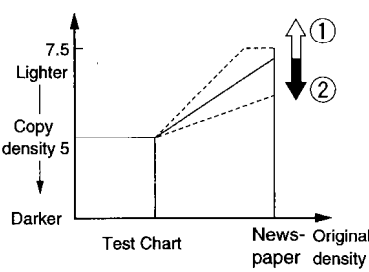
Figure 3-312

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3. AE Adjustment

The NP6035 provides the following three types of AE adjustment (service mode):

- Auto adjustment (under *4*)
- Scanning lamp ON voltage adjustment during AE exposure (under *3*)
- Development DC bias adjustment for newspaper originals in AE mode (under *3*)

Item	Function	Description	Remarks
4 AE_ADJ	AE scan intensity auto adjustment		Adjustments are made automatically so that the copy density will be '5' when 'AE_ADJ' is executed.
3 AE_LIGHT	AE scan intensity adjustment		① If the setting is decreased in service mode, the AE copies will be darker. ② If the setting is increased in service mode, the AE copies will be lighter.
3 AE_SLOP	AE slope adjustment		① If the setting is increased in service mode, the copies of a newspaper will be lighter. ② If the setting is decreased in service mode, the copies of a newspaper will be darker.

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I. Developing Assembly/Drum Cleaner

1. Outline

The NP6035's developing assembly is locked/released together with its rail by the manually operated locking lever.

The toner stirring rod inside the developing cylinder and the developing assembly and the blade inside the drum cleaner are rotated by the drive of the main motor (M1).

The level of toner is detected in reference to the toner absent signal (TEP) from the toner sensor (TS1) inside the developing assembly.

The waste toner collected by the cleaning blade is collected inside the drum cleaner case, and the waste toner full sensor (PS15) detects when the waste toner case becomes full.

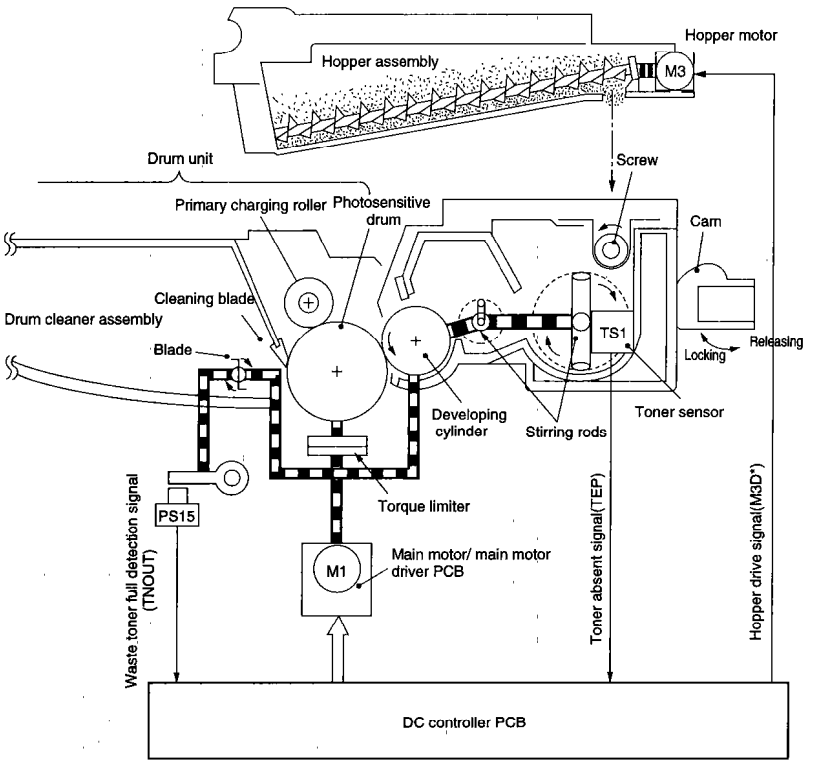


Figure 3-313

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2. Detecting the Level of Toner and Controlling the Supply

The level of toner inside the developing assembly is monitored by the toner sensor (TS1) of a piezoelectric oscillator type which generates the toner absent signal (TEP*=0) when the level drops below a specific value.

The DC controller turns on the hopper motor (M3) to start toner supply when it has detected TEP*=0 for 1 sec or more continuously.

The hopper motor drive signal (M3D*) is generated so that it is '1' for 1 sec and '0' for 4 sec; this cycle of 5 sec is repeated as necessary.

The hopper motor (M3) is stopped when the toner absent signal (TEP*) goes '1'.

If the toner absent signal (TEP*) does not go 25 sec after the start of toner supply, the DC controller PCB assumes the absence of toner inside the hopper and indicates the "Add Toner" message after copying operation.

Reference:

The detecting unit of the toner sensor used inside the developing assembly is of a piezoelectric oscillator type; it vibrates at several kHz in the absence of toner with its output '1', and stops vibrating because of the weight of toner in the presence of toner with its output going '1'.

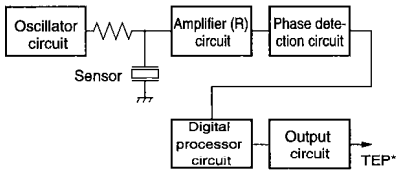


Figure 3-314

3. Detecting Waste Toner

The waste toner which has been scraped off by the cleaning blade is forwarded to the rear of the cleaner case by the waste toner blade inside the drum cleaner.

The coupling shown in Figure 3-315 is forced against the blade drive by a spring to transmit the drive of the main motor (M1), rotating the waste toner blade.

When the cleaner case becomes full of waste toner, the rotation of the waste toner blade will start to drag, causing the coupling to move back and forth in axial direction to push the waste toner sensor lever, and this condition keeps turning ON and OFF the waste toner sensor (PS15).

The DC controller PCB monitors the state of the waste toner sensor (PS15) at intervals of 0.02 sec for 2 sec after the main motor has turned ON. The DC controller PCB assumes that the case has become full of waste toner when PS10 has turned on 35 times.

If the machine is in standby, the DC controller will indicate the "Waste Toner Full" message on the message display. Advise the user to make a service call if this happens.

The NP6035 is capable of making about 200 more copies after the message has appeared, but it is important to replace the drum unit as soon as possible.

Reference:

The cleaner case becomes full when about 60,000 copies have been made of 6% originals.

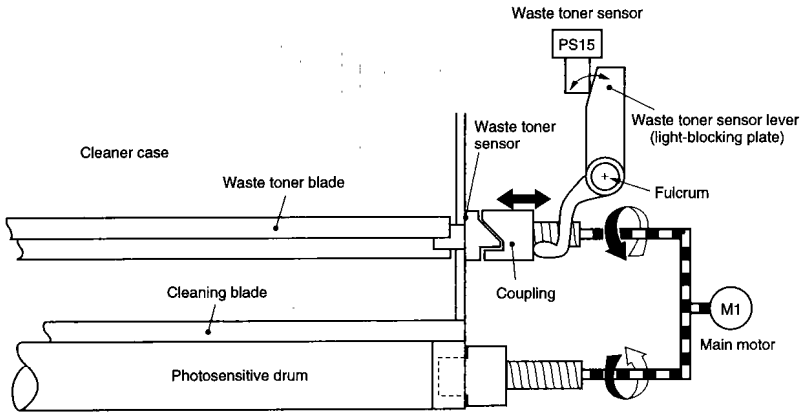


Figure 3-315

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J. Controlling the Blanking Mechanism

1. Outline

The NP6035 does not have LEDs used exclusively for blanking so that it shines the light from the pre-exposure lamp against the photosensitive drum by guiding it using a reflecting plate to black (white) out the sheet-to-sheet gap and the non-image areas.

The NP6035's blanking area is controlled by one open/close shutter and three slide shutters.

- Open/Close Shutter

  The open/close shutter is located in the optical path for full blanking, and its position is operated by the shutter solenoid (SL4).

  The open/close shutter solenoid (OSL4) turns ON and OFF at a specific timing to execute blanking and create leading/trailing edge margins.

- Slide Shutter

  The three slide shutters are located in the optical path for size blanking, and its position is controlled by two stepping motors.

  These slide shutters serve to create left/right margins and to black (white) out the non-image areas in image composition reduction copying.

2. Controlling the Blanking Shutter (slide shutter) Motor

The blank shutters (slide shutters; front, rear) are driven by one 2-phase stepping motor each.

The blanking shutter motor (M8, M9) drives the blanking shutter (slide shutter) to return to its home position when power is turned on; then, the shutter rotates in response to drive pulses from the DC controller PCB to move to a specific location.

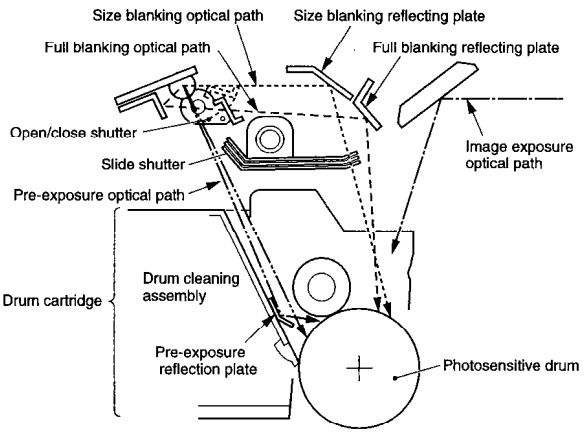


Figure 3-316

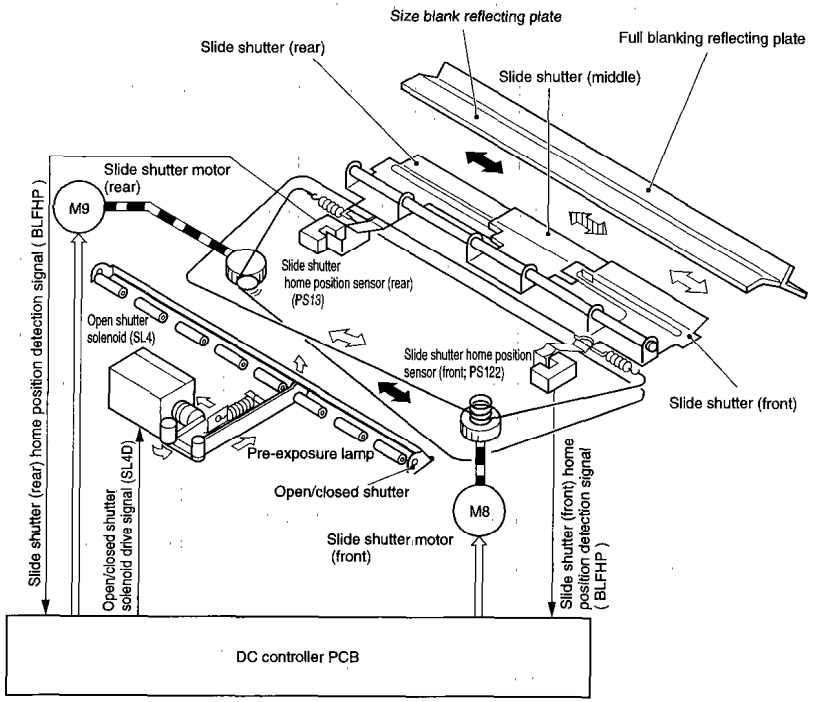

Size blank reflecting plate
Full blanking reflecting plate
Slide shutter (rear)
Slide shutter (middle)
Slide shutter motor (rear)
M9
Slide shutter home position sensor (rear) (PS13)
Open shutter solenoid (SL4)
Slide shutter home position sensor (front; PS122)
Slide shutter (front)
Pre-exposure lamp
Open/closed shutter
M8
Slide shutter motor (front)
Slide shutter (rear) home position detection signal (BLFHP)
Open/closed shutter solenoid drive signal (SL4D)
Slide shutter (front) home position detection signal (BLFHP)
DC controller PCB

Figure 3-317

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K. Controlling the Primary Charging Roller Cleaning

1. Outline

The NP6035's primary charging roller is equipped with an automatic cleaning mechanism which cleans the primary charging roller under the following conditions:

- At time of power-on when the temperature of the fixing assembly is 100°C or less.
- During execution of 'adjustment/cleaning -> primary charging roller cleaning' in user mode.
- During last rotation after making 100 copies (cumulative).

2. Cleaning the Primary Charging Roller

The primary charging roller is cleaned during primary charging roller rotation (WMUPR) by turning on the primary charging roller cleaning solenoid (SL7), thereby butting the cleaning pad against the roller.

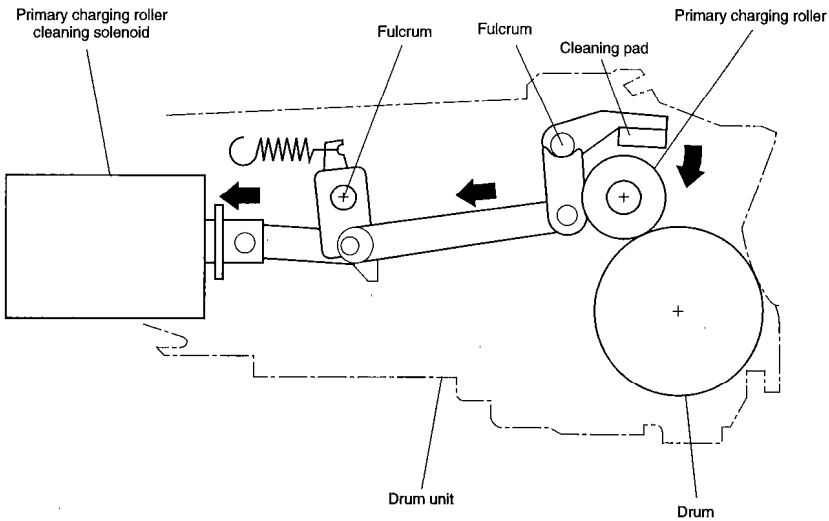


Figure 3-318

L. Locking and Releasing the Transfer Roller

1. Outline

The NP6035's transfer roller is equipped with a locking/releasing mechanism.

The mechanism locks/releases the transfer roller to prevent adhesion of toner to the transfer roller under the following condition:

- During last rotation (LSTR) after making 50 copies (cumulative)

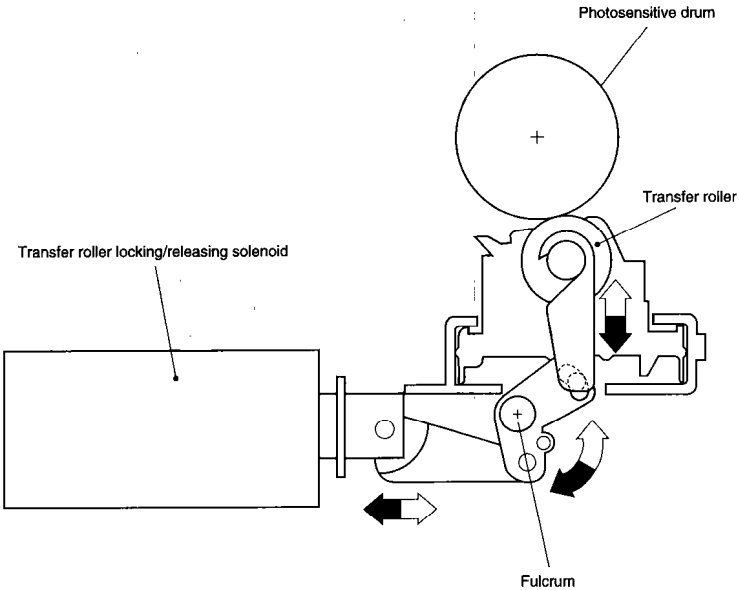


Figure 3-319

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M. Detecting Errors in the Composite Power Supply PCB

1. Outline

The NP6035 is equipped with a composite power supply, and a microprocessor (Q401) is located on the composite power supply PCB.

The DC controller PCB and the composite power supply PCB exchange data over an 8-bit data line and a 3-bit command line. In addition, the NP6035 includes a 2-bit communication check line, two serial communications lines, serial communications lock signal line, and signal line for turning on LED101 on the DC controller PCB.

If any of the following errors occur, the DC controller PCB uses the data from the error data transmission line to indicate a self diagnosis code on the control panel or to turn on (flash) LED101 to communicate the presence of an error.

- Leakage of Transfer Bias
  When the error detection circuit for transfer bias turns on and the TPRTCT signal is sent to the microprocessor (Q401), the microprocessor (Q401) communicates an error to the DC controller PCB by means of high-voltage error status data so that 'E065' will be indicated. (Figure 3-308)
- Communication Error between DC Controller PCB and Composite Power Supply PCB
  If a communication error has occurred in the communication between DC controller PCB and composite power supply PCB, the DC controller PCB indicates 'E244' on the control panel and, at the same time, flashes LED101 on the DC controller PCB at intervals of 5 sec. (Table 3-303)
  When an error associated with 'E244' is detected, the DC controller turns off all outputs in 5 sec. (LED101 on the DC controller PCB, however, will continue to flash.)
- Short Circuit in the DC Power Supply Circuit
  When the composite power supply PCB detects overcurrent because of an error in a DC load, wire trapping, or the like, it flashes LED101 at intervals of 2 sec. (Table 3-303)
- Error in High-Voltage Output Data
  If the difference between the setting generated for high voltage from the microprocessor (Q401) on the composite power supply and the actual control value is appreciable, the microprocessor computer (Q401) informs the DC controller PCB of the presence of an error by means of high-voltage error status data (serial communication) so that 'E064' will be indicated.

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2. Identifying an Error by LED

You can identify the following errors by referring to how and how long LED101 on the DC control turns ON (flashes).

LED101	Copier status	Cause
ON for 0.5 sec/OFF for 0.5 sec	Normal	
ON for 5 sec/OFF for 5 sec	An error detected in communication between composite power supply and DC controller PCB	• Harness (faulty) • Microprocessor (faulty)
ON for 2 sec/OFF for 2 sec	Short circuit in low voltage	• Harness (faulty) • DC load (faulty) • Microprocessor (faulty)
ON	Error	• Composite power supply PCB LED drive circuit (faulty) • Microprocessor (faulty)
OFF	Error	• Composite power supply PCB LED drive circuit (faulty) • LED connector (off, power contact; J114 on DC controller PCB, J905 on composite power supply) • Microprocessor (faulty)

Table 3-303

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IV. PICK-UP/FEEDING SYSTEM

A. Outline

The NP6035 uses center reference, in which copy paper is fed along the center of the pick-up/feeding path; its pick-up system, further, consists of two cassettes (upper, lower) and a multifeeder.

After pick-up from the cassette or the multifeeder, copy paper is controlled by the registration roller so that its leading edge matches the leading edge of the image on the photosensitive drum; it then is sent through the transfer, separation, feeding, and fixing assemblies and ultimately to the copy tray.

As many as six sensors are used to monitor the movement of copy paper. (See Table 3-401.)

No.	Name
PS6	Vertical path roller 1 paper sensor
PS7	Vertical path roller 2 paper sensor
PS9	Pre-registration paper sensor
PS10	Separation sensor
PS11	Delivery sensor
PS24	Feeding assembly paper sensor

Table 3-401

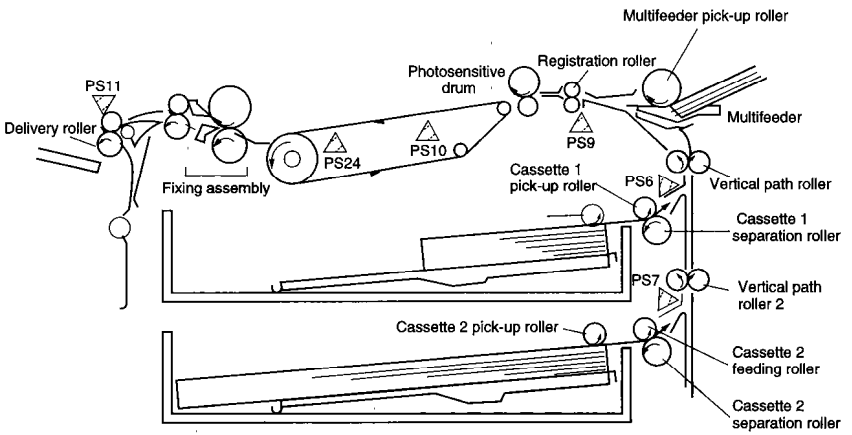


Figure 3-401

B. Pick-Up from the Cassette

1. Pick-Up Operation

The copy paper inside the cassette is held up by a lifter so that it remains in contact with the pick-up roller.

When the pick-up clutch (CL2 or CL3) turns on, the pick-up roller starts to rotate to feed copy paper. Then, the pick-up roller releasing solenoid (SL1 or SL2) turns on so that the pick-up roller leaves the copy paper.

The feeding roller and the separation roller make sure that only one sheet of copy paper is picked up and sent to the feeding assembly; thereafter, the vertical path roller moves the copy paper as far as the registration roller.

The registration roller controls the copy paper so that its leading edge matches the image on the photosensitive drum. (See p. 3-65.)

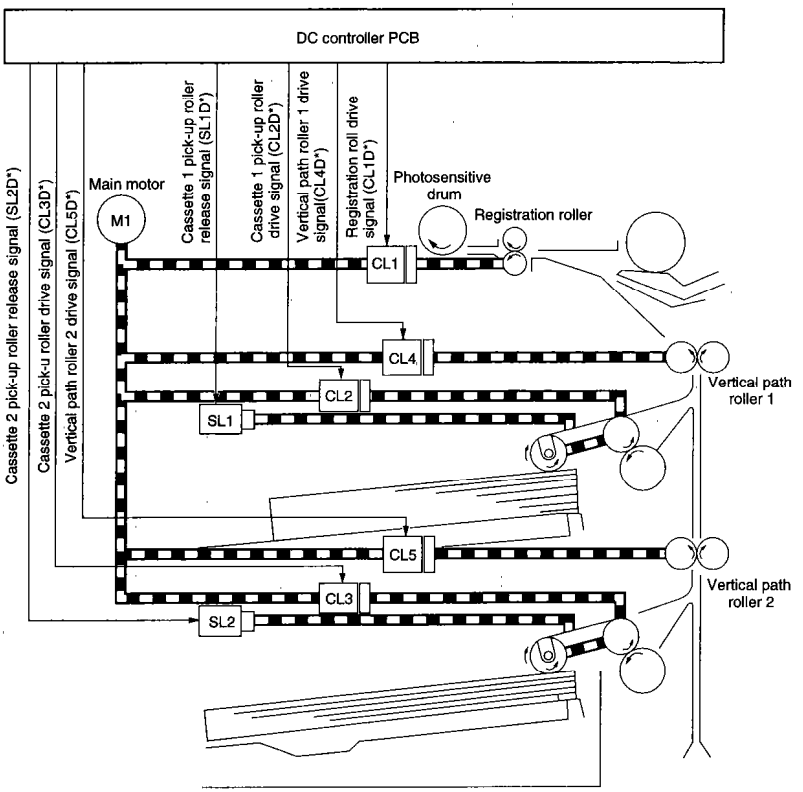


Figure 3-402

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2. Sequence of Pick-Up Operations

- Cassette 1, A4, 2 Copies, Continuous

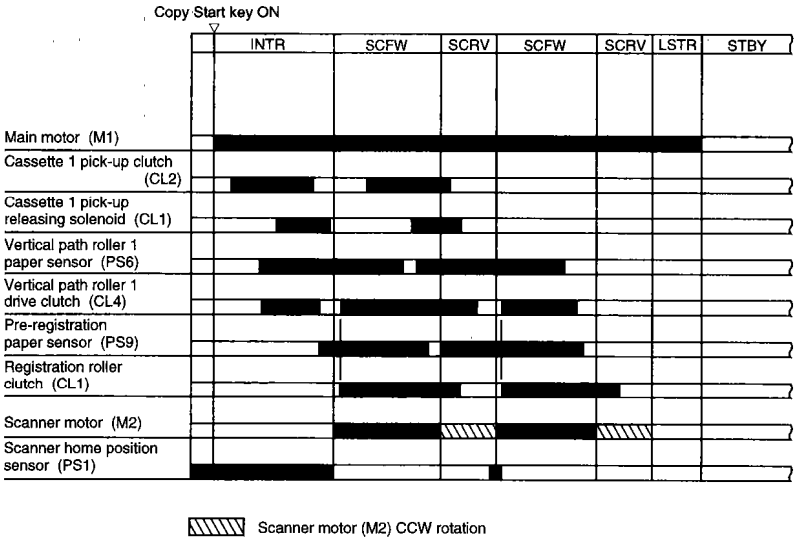


Figure 3-403

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C. Movement of the Cassette Lifter

When the cassette is pushed inside the copier, the pick-up roller moves down, and the light-blocking plate leaves the lifter position sensor (PS3, PS4), thereby turning on the lifter motor (M4, M5) to move up the lifter. The lifter motor stops where the lifter position sensor (PS3, PS4) can detect the top surface of the stack of copy paper on the lifter.

When the cassette runs out of copy paper and the paper detection roll mounted to the pick-up roller shaft falls and, as a result, the paper detecting lever leaves the paper sensor (PS2, PS5), the "Add Paper" message will be indicated on the control panel.

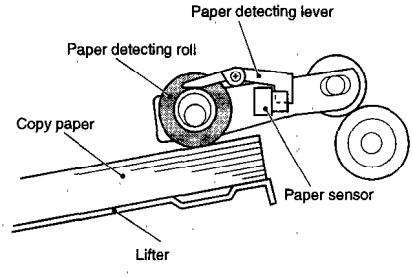


Figure 3-404

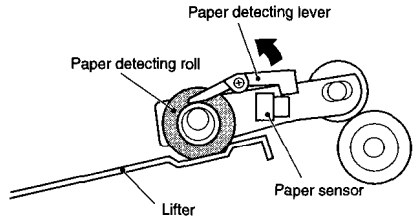


Figure 3-405

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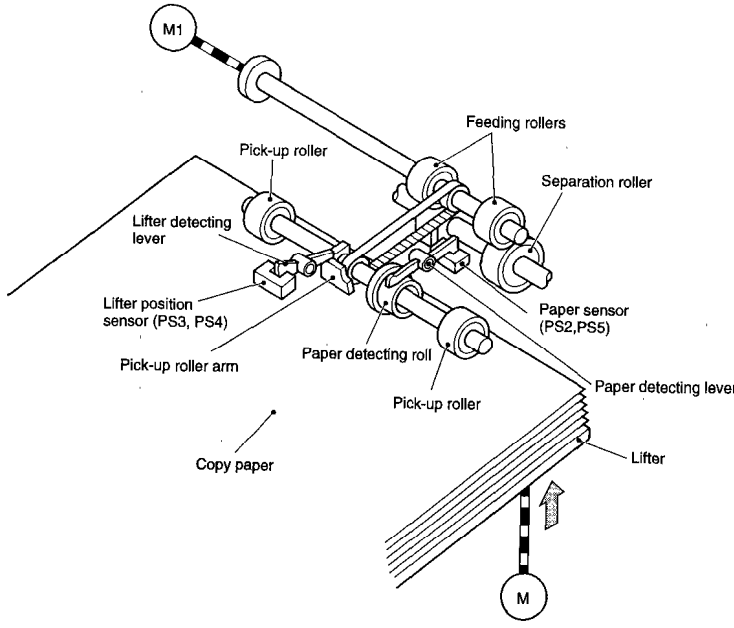


Figure 3-406

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D. Identifying the Size of Copy Paper

1. Outline

The size of copy paper inside the cassette is identified by the paper size sensors mounted to the rear of the cassette holder.

When the cassette is slid inside the cassette holder, the paper size sensors are activated by the bosses on the cassette, enabling detection of the width and the length of copy paper.

The NP6035 identifies the size of paper based on combinations of paper width and length and, at the same time, determines the point of scanner reversal and the control method for blank exposure.

The bosses used to push the paper size sensors operate in conjunction with the guide plate inside the cassette, and the arrangement is determined by adjusting the guide plate to the size of paper to be used.

2. Identifying the Size of Copy Paper

The copy paper length sensor uses two photointerrupters, and the length of copy paper is identified based on combinations of the outputs from these two photointerrupters.

On the other hand, the copy paper width sensor uses variable resistors, and the paper width is identified in reference to the resistance generated by these resistors.

Figure 3-407 shows the relationship between paper width and outputs of the variable resistors. You must enter the basic values whenever you have replaced the DC controller PCB or any of the sensors to ensure that the relationship remains correct. (See the Service Handbook.)

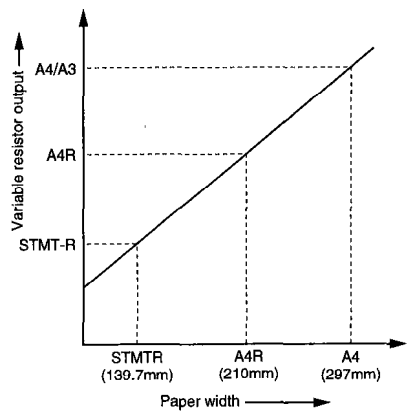


Figure 3-407

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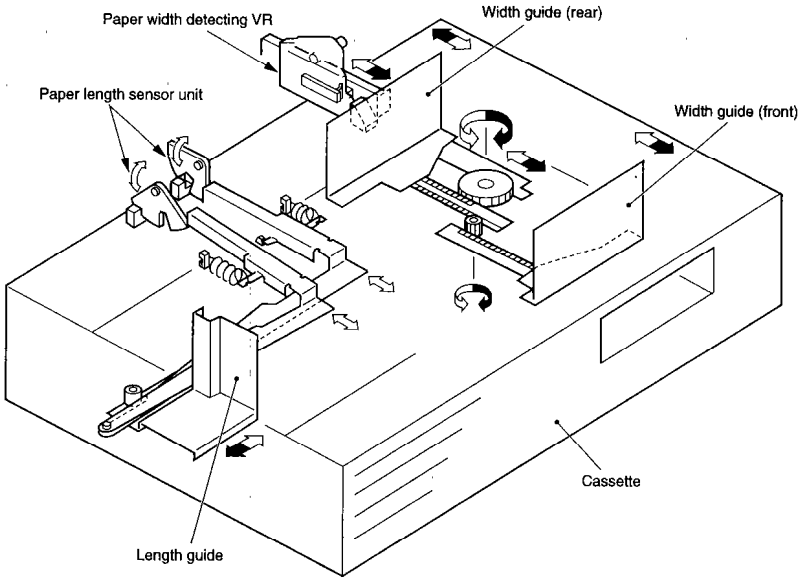


Figure 3-408

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3. Markings on the Width Guide Rail

The width guide rail inside the cassette has paper size holes, marked A through M as shown in Table 3-402.

Use these holes if the user reports skew movement of copy paper to find out if the copy size width is correctly set. (Note that this information is not disclosed to the user.)

Marking	Name	Remarks
A	STMT-R	
B	A5-R	
C	B5-R	
D	KLGL-R	
E	GLTR-R	
F	G-LGL	G3
G	A4-R	
H	LGL/LTR-R	
I	FLSC	G2
J	B4/B5	
K	G-LTR	G1
L	279 mm × 432 mm (11" × 17") /LTR	G4
M	A3/A4	

(For G1 through G4, see Table 3-404.)

Table 3-402

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4. Paper Size

The microprocessor on the DC controller PCB determines the size of copy paper as in Table 3-403 based on the paper width and length inputs.

Paper length sensor	PS102/ PS104	PS101/ PS103	PS102/ PS104	PS101/ PS103	PS102/ PS104	PS101/ PS103	PS102/ PS104	PS101/ PS103
Signal	SZ2	SZ1	SZ2	SZ1	SZ2	SZ1	SZ2	SZ1
Paper width sensor (slide lever) Unit: mm / ON/OFF	0	0	0	0	0	0	0	0
288.5	A4		–		A3		–	
273.7	(G4)		–		279 × 432 mm (11" × 17")		–	
261.8	(G1)		–		–		–	
238.0	B5		–		B4		–	
212.9	STMT		LTRR		LGL		(G2)	
206.6	A5		A4R		–		(G3)	
196.6	G-LTRR		–		–			
186.0	K-LGLR		–		–		–	
165.2	B5R		–		–		–	
144.1	A5R		–		–		–	
	STMTR		–		–		–	

Table 3-403

The paper sizes shown in Table 3-404 are selected in respect of the paper sizes determined within each group in service mode.

The asterisk (*) indicates the factory default paper size.

Group	Size	
G1	*	G-LTR
		K-LGL
G2	*	FOOLSCAP
		OFFCIO
		E-OFFI
		A-LGL
		A-OFFI
G3	*	G-LGL
		FOLIO
		AUS-FLS
G4	*	LTR
		A-LTR

Table 3-404

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• Paper Types for the NP6035

Paper	Notation	Size (vertical x horizontal ; mm)
A3	A3	(297 ±1) × (420 ±1)
A4R	A4R	(210 ±1) × (297 ±1)
A4	A4	(297 ±1) × (210 ±1)
A5	A5	(210 ±1) × (148.5 ±1)
A5R	A5R	(148.5 ±1) × (210 ±1)
B4	B4	(257 ±1) × (364 ±1)
B5R	B5R	(182 ±1) × (257 ±1)
B5	B5	(257 ±1) × (182 ±1)
279mm x 432mm (11" x 17")	11 × 17	(279 ±1) × (432 ±1)
LETTER R	LTRR	(216 ±1) × (297 ±1)
LETTER	LTR	(297 ±1) × (216 ±1)
STATEMENT	STMT	(216 ±1) × (139.5 ±1)
STATEMENT R	STMTR	(139.5 ±1) × (216 ±1)
LEGAL	LGL	(216 ±1) × (356 ±1)
KOREAN LEGAL	K-LGL	(265 ±1) × (190 ±1)
KOREAN LEGAL R	K-LGLR	(190 ±1) × (265 ±1)
FOOLSCAP	FLSC	(216 ±1) × (330 ±1)
AUSTRALINAN FOOLSCAP	A-FLS	(206 ±1) × (337 ±1)
OFICIO	OFI	(216 ±1) × (317 ±1)
EQUADORAN OFICIO	E-OFI	(220 ±1) × (320 ±1)
BOLIVIAN OFICIO	B-OFI	(216 ±1) × (355 ±1)
ARGENTINE LETTER	A-LTR	(280 ±1) × (220 ±1)
ARGENTINE LETTER-R	A-LTRR	(220 ±1) × (280 ±1)
GOVERNMENT LETTER	G-LTR	(267 ±1) × (203 ±1)
GOVERNMENT KETTER-R	G-LTRR	(203 ±1) × (267 ±1)
ARGENTINE LEGAL	A-LGL	(220 ±1) × (340 ±1)
GOVERNMENT LEGAL	G-LGL	(203 ±1) × (330 ±1)
FOLIO	FOLI	(216 ±1) × (317 ±1)
ARGENTINE OFFICIO	A-OFI	(220 ±1) × (340 ±1)

Table 3-405

5. Registering Paper Width Basic Values

See the Service Handbook.

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E. Multifeeder

1. Outline

The multifeeder is a mechanism which picks up copy paper from the stack placed on it and which is capable of continuous pick-up.

The copy paper on the tray is monitored by the multifeeder paper sensor (PS8).

The copy paper on the tray is butted against the pick-up roller by the paper guide plate. The drive of the main motor (M1) is transmitted to the pick-up roller through a clutch to rotate the pick-up roller.

The pick-up roller and the separation pad serve to make sure that only one sheet of copy paper is picked up and sent to the registration roller.

This series of operations is executed for each pick-up operation.

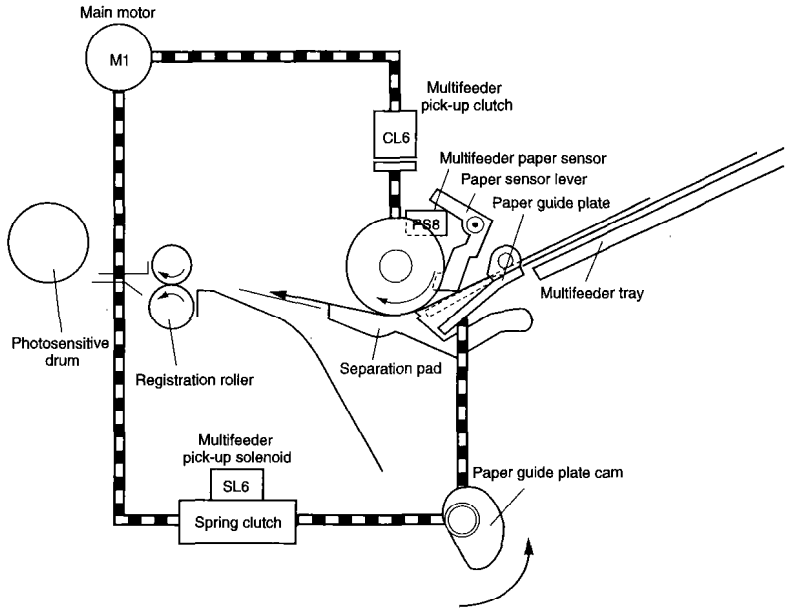


Figure 3-409

2. Identifying the Size of Paper on the Multifeeder

The width of copy paper is identified using a variable resistor which operates in conjunction with the movement of the slide guide on the multifeeder adjusted by the user to suit the copy paper used.

The width of copy paper detected in this way is used to control blank exposure; further, the length of copy paper when the multifeeder is used is identified in reference to the period during which the pre-registration paper sensor (PS9) remains on.

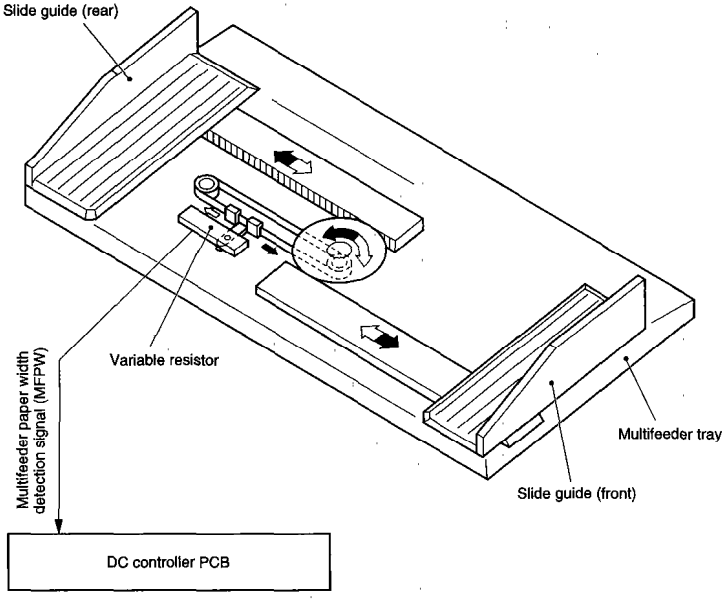


Figure 3-410

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3. Sequence of Multifeeder Pick-Up Operations

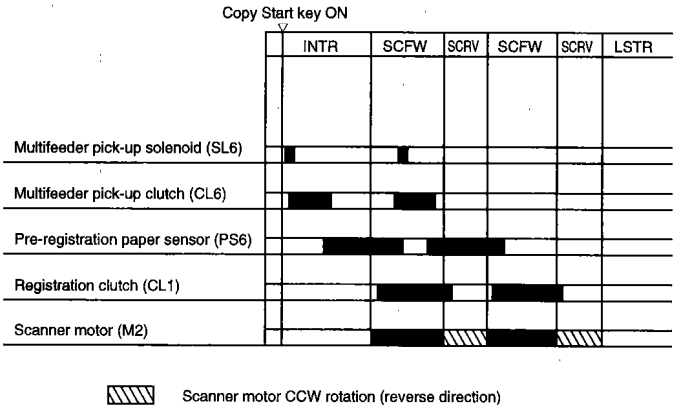


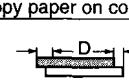
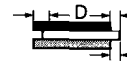
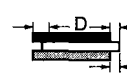
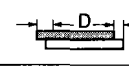
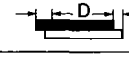
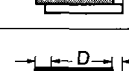
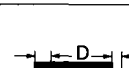
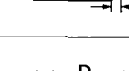
Figure 3-411

F. Controlling the Registration Clutch

The registration clutch (CL1) controls copy paper so that it matches the image on the drum at a specific position.

Unless binding mode is used, the registration clutch (CL1) controls copy paper so that its leading edge and the leading edge of the image on the drum match.

In binding mode, control will be as shown in Figure 3-412 to create a binding margin on copies.

Selected mode		Copy paper timing	Shift (mm)	Copy paper on copy tray
one-sided original → one-sided copy		B		
one-sided original ↓ two-sided copy	copying on 1st side	A	May be between 0 and 20 mm; figures assume a shift of 5 mm.	
	copying on 2nd side	B		
two-sided original ↓ two-sided copy	copying on 1st side	A		
	copying on 2nd side	B		
two-sided copy ↓ one-sided copy	copying on 1st side	B		
	copying on 2nd side	B		
page separation (one-sided copy)	copying on 1st side (let)	B		
	copying on 2nd side (right)	B		
page separation ↓ two-sided copy	copying on 1st side (left)	A		
	copying on 2nd side (right)	B		
one-sided original ↓ overlay copy	copying on 1st side	B		
	copying on 2nd side	B		
two-sided original ↓ overlay copy	copying on 1st side	B		
	copying on 2nd side	B		
page separation ↓ overlay copy	copying on 1st side (left)	B		
	copying on 2nd side (right)	B		

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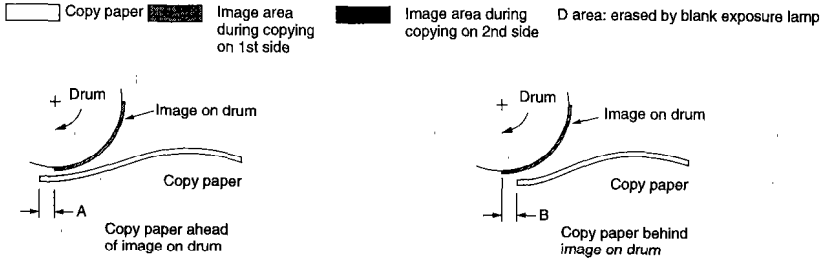


Figure 3-412

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G. Fixing/Delivery Assembly

1. Outline

The upper roller, lower roller, and delivery roller of the fixing assembly are driven by the main motor (M1).

The NP6035 uses two fixing heaters (H1, 700 W; H2, 600 W) to heat the upper roller, and the surface temperature of the upper roller is monitored by a thermistor (TH1).

The DC controller PCB uses the fixing temperature signal (TH1, analog) from the thermistor to turn ON/OFF the fixing heater drive signal (MHRD, SHRD).

The area heated during copying is varied according to the size of copy paper (copy paper width). Further, as necessary to suit the ambient temperature, low-temperature mode is activated.

The delivery assembly is equipped with a delivery flapper; in two-sided/overlay copying mode (with pedestal w/ duplexing unit installed), the DC controller PCB generates the delivery paper deflecting plate solenoid drive signal (SL5D*) to drive the delivery paper deflecting plate to forward copy paper to the duplexing unit.

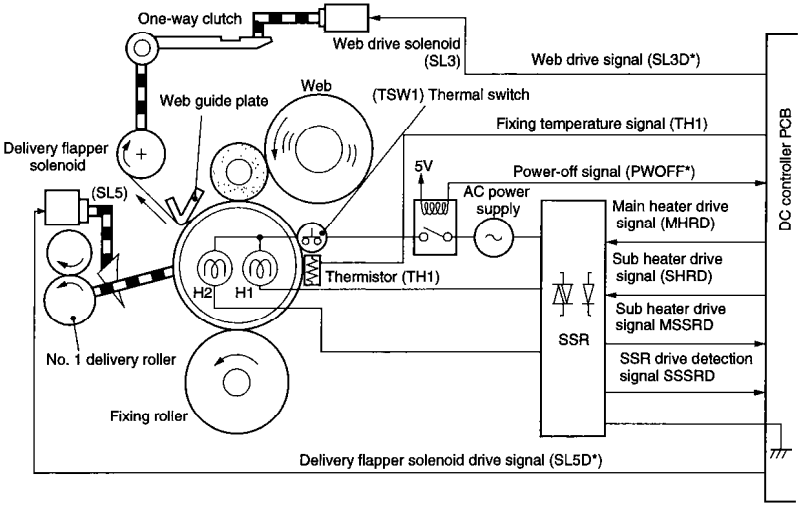


Figure 3-413

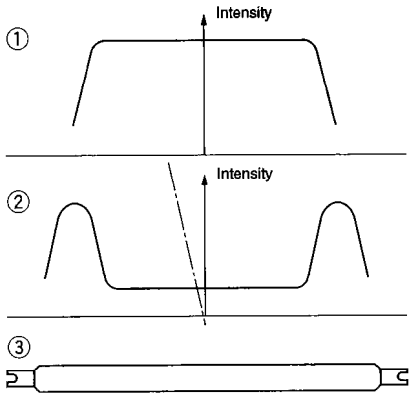
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2. Controlling the Area of Heating (fixing roller)

The upper fixing roller is heated by two heaters: main heater (H1) and sub heater (H2).

The NP6035's main and sub heaters are halogen lamps with different thermal distribution characteristics. (Figure 3-414)

The surface temperature of the fixing roller is maintained even by varying the period in which these two heaters are turned ON while at the same time preventing overheating of the ends.



① Main heater (H1) thermal distribution
② Sub heater (H2) thermal distribution
③ Upper fixing roller external view

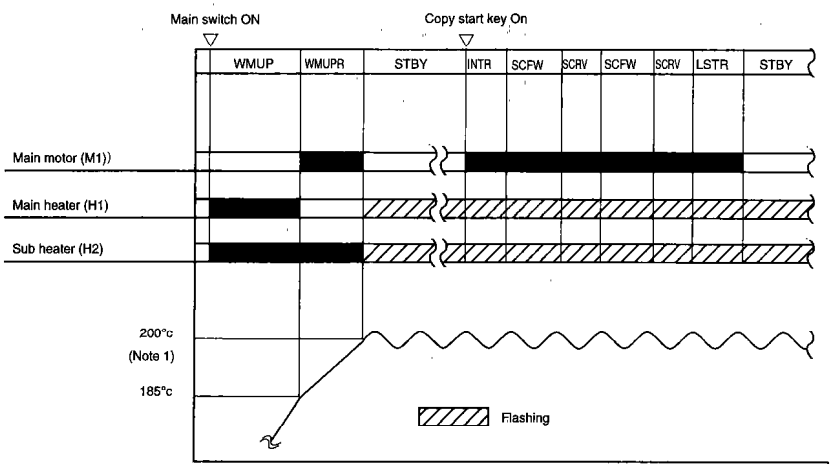
Figure 3-414

3. Sequence of Controlling the Fixing Temperature

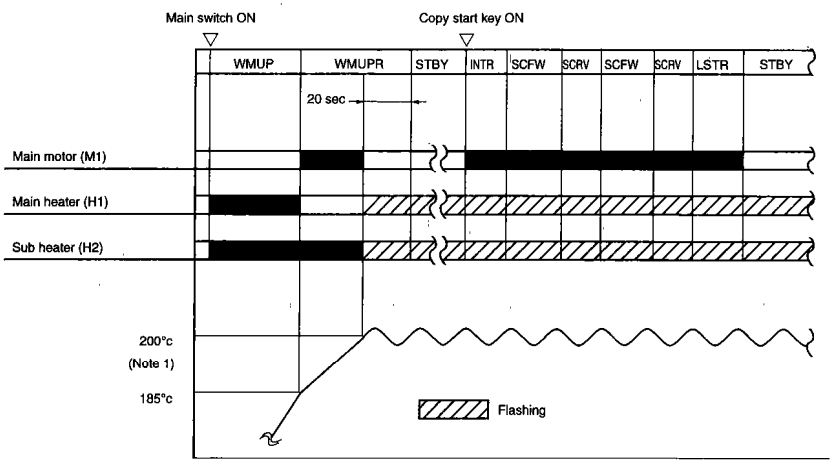
The NP6035 has low-temperature mode to prevent faulty fixing in a low-temperature condition. When the thermal sensor on the DC controller detects 12°C or less, the NP6035 starts low-temperature mode, changing the method of controlling the fixing roller temperature (multiple initial rotation only).

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• Sequence of Control (normal temperature)



• Sequence of Control (low-temperature mode)



Note 1:
190°C when copying on the 1st side of a two-sided copy; 180°C when copying on the 2nd side.

Figure 3-415

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4. Protection Mechanism

The NP6035 uses the following three to prevent malfunction of its fixing heater:

- Signal from the thermistor
- Signal from the SSR
- Thermal switch

a. Protection with Signal from the Thermistor

The DC controller PCB monitors the voltage of the thermistor (TH1) and indicates a self diagnosis code in response to overheating.

If the temperature of the fixing roller reaches 220°C (detected by the thermistor TH1), 'E001' will be indicated on the control panel and the copying operation will be stopped.

If the temperature of the fixing roller as detected by the thermistor (TH1) exceeds 220°C for some reason, the error auto power-off signal (PWOFF*) is generated to turn off the power switch.

b. Protection with the Signals from the SSR

If the fixing heater continues to remain on because of a short circuit in the SSR, the DC controller PCB generates the error auto power-off signal (PWOFF*) to turn off the power switch.

The NP6035's fixing heater drive SSR sends the SSR drive detection signal (MSSRD, SSSD) to the DC controller PCB when the SSR is ON; the DC controller PCB also monitors the heater drive signal (MHRD, SHRD) and the SSR drive detection signal (MHRD) at the same time.

If the SSR drive detection signal (MSSRD) is '1' when the main heater drive signal (MHRD) is '0', the DC controller PCB will assume the condition as an error in the SSR and will indicate 'E004' on the control panel. In about 1.7 sec thereafter, it generates the error auto power-off signal (PWOFF*) to turn off the power switch.

c. Protection with a Thermistor

If the internal temperature of the thermal switch (TS1) exceeds about 220°C, the thermal switch turns OFF to cut off the power to the fixing heater.

If the thermal switch turns OFF, the error auto power-off signal (PWOFF*) will be generated in about 1.5 sec to turn off the power switch.

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Reference:

Once its contact opens, the thermal switch (TS1) will not return to normal even at ambient temperature. It may be used once again by cooling it to 0°C or less.

d. Recovery after Activation of the Protection Mechanism

If the auto power-off signal (PWOFF*) has been generated, remove the cause, and turn on the power switch to recover.

If 'E001', 'E002', or 'E003' has been indicated, remove the cause, and execute 'ERROR' in service mode (*4*) to recover.

Reference:

When selected in user mode, "auto power-off" will also turn off the power switch when activated. To distinguish from such "auto power-off," this manual refers to the foregoing auto power-off as "error auto power-off."

5. Driving the Fixing Web

The web used to clean the upper fixing roller is driven by turning on and off the web drive solenoid (SL3) by causing the web drive signal (SL3D) generated by the DC controller circuit to go '1' and '0'. The web is taken up about 0.04 mm each time the web drive solenoid is turned ON.

The area of contact between the web and the upper fixing roller is increased to improve cleaning efficiency by means of a web guide plate.

The web drive solenoid (SL3) is turned on as soon as copy paper reaches the separation sensor (PS10); the number of times the solenoid is turned ON, further, varies according to the length of copy paper.

Length of copy paper	Activation (ON/OFF)
Less than 216 mm	Once
216 mm or more	Twice

Table 3-406

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The DC controller circuit keeps count of how many times the web drive solenoid (SL3) turns ON; it indicates the "Web Running Out" message on the message display in standby state after the solenoid has turned ON more than 250,000 times. Advise the user to make a service call when the message appears. (The counter may be checked or cleared in service mode.)

Wed Solenoid Activation Timing

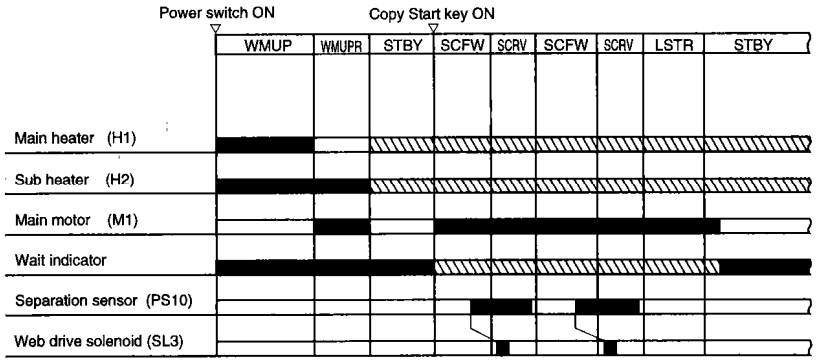


Figure 3-416

6. Fixing Roller Bias

A positive DC bias (about 700 V) is applied to the metal core of the upper fixing roller during copying, thereby limiting offset of toner to the fixing roller.

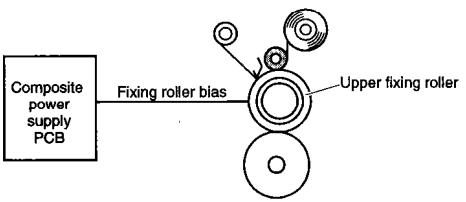


Figure 3-417

H. Detecting Jams

The following seven sensors are used to check the movement of copy paper:

- Vertical path roller 1 paper sensor (PS6)
- Vertical path roller 2 paper sensor (PS7)
- Pre-registration paper sensor (PS9)
- Separation paper sensor (PS10)
- Delivery sensor (PS11)
- Delivery vertical path paper sensor (PS14P; option)
- Feeding assembly paper sensor (PS24)

The NP6035 detects a jam in reference to the presence/absence of paper at a specific sensor at such times as programmed in the microprocessor in advance.

The NP635 is equipped with a mechanism to remember the remaining number of copies to make at time of a jam and the effective copying mode even after the power is turned OFF for jam removal.

The microprocessor possesses the following sequences of jam detection; it assumes the presence of a jam also when any of the sensors detests copy paper at power-on.

The feeding assembly paper sensor (PS24), on the other hand, is used for checking whether the jam has been removed and is not used for detecting jams.

When a jam is detected, power to the fixing heater (H1, H2) will be cut off and the copier operation will be stopped immediately; at the same time, the Jam indicator will be flashed on the control panel and the jam location indicator will also be flashed.

When the jam detection mechanism turns ON, the jam in question will not be counted as a copy made.

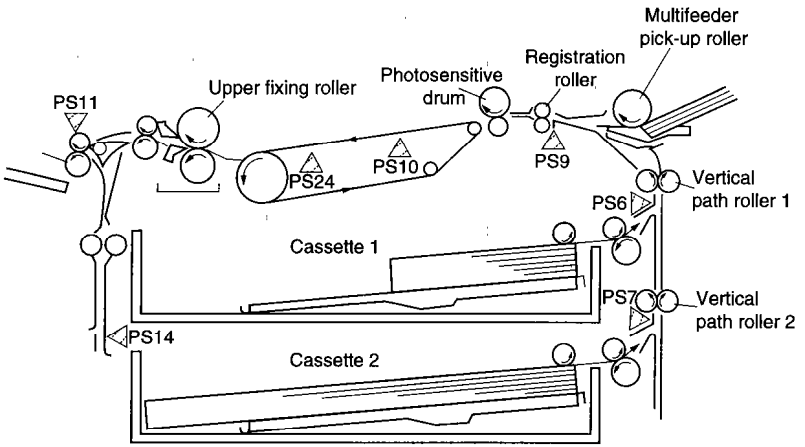
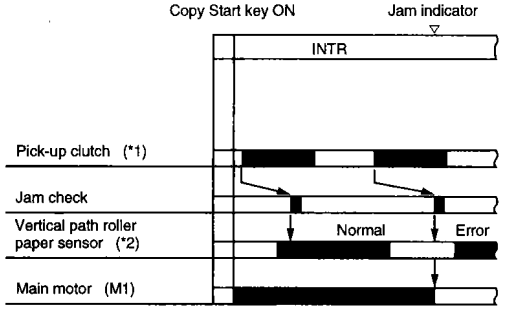


Figure 3-418

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① Pick-Up Delay Jam

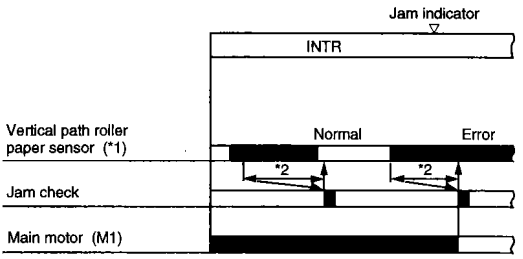


*1 : Cassette 1 pick-up Cassette 1 pick-up clutch (CL2)
Cassette 2 pick-up Cassette 2 pick-up clutch (CL3)
Multifeeder pick-up Multifeeder pick-up clutch (CL6)

*2 : Cassette 1 pick-up Vertical path roller 1 paper sensor (PS6)
Cassette 2 pick-up Vertical path roll 2 paper sensor (PS7)
Multifeeder pick-up Pre-registration sensor (PS9)

Figure 3-419

② Pick-Up Stationary Jam



*1 : Cassette 1 pick-up Vertical path roller 1 paper sensor (PS6)
Cassette 2 pick-up Vertical path roller 2 paper sensor (PS7)
Multifeeder pick-up Pre-registration sensor (PS9)

*2 : Varies according to paper length.

Figure 3-420

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③ Separation Sensor Delay Jam

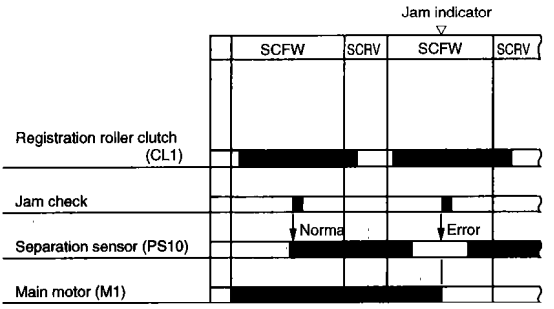


Figure 3-421

④ Separation Sensor Stationary Jam

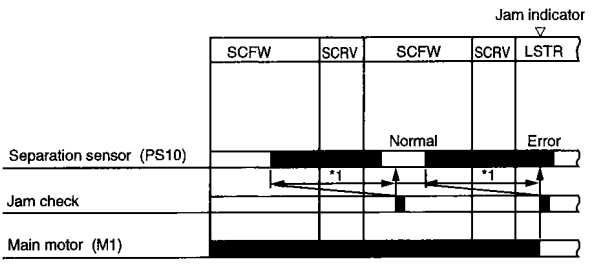


Figure 3-422

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⑤ Delivery Sensor Delay Jam

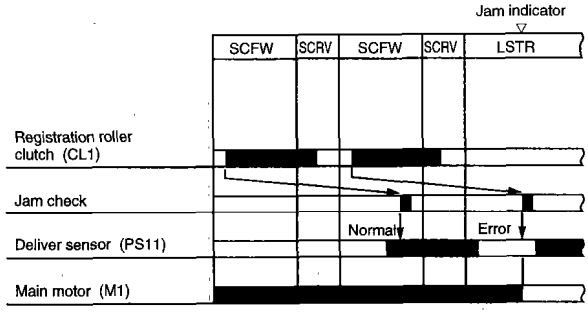
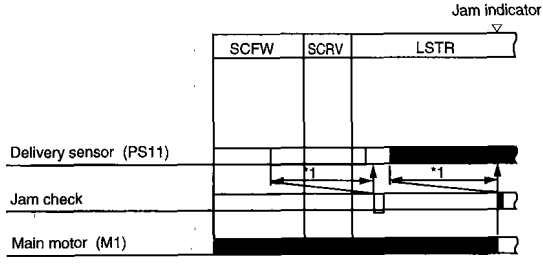


Figure 3-423

⑥ Delivery Sensor Stationary Jam



*1 : Varies according to paper length.

Figure 3-424

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⑦ Delivery Vertical Path Paper Sensor Delay Jam

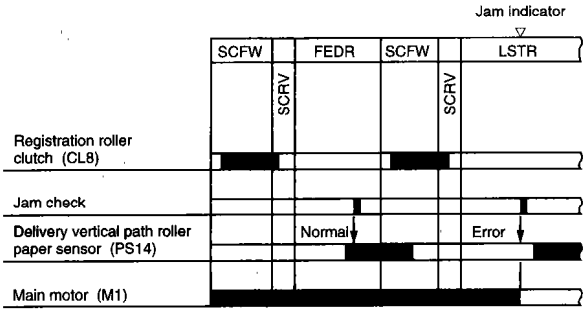
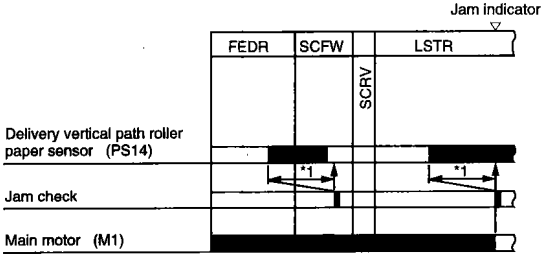


Figure 3-425

⑧ Delivery Vertical Path Paper Sensor Stationary Jam



*1 : Varies according to paper length.

Figure 3-426

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V. CONTROL PANEL

The NP6035's control panel is designed as shown in Figure 3-501.
Th control panel is controlled by the CPU (slave IC112) on the DC controller PCB.
The text on the LCD is made of characters from the font memory on the DC controller PCB.
The counter assembly has a LCD VR PCB whose VR999 may be used to adjust the display density.

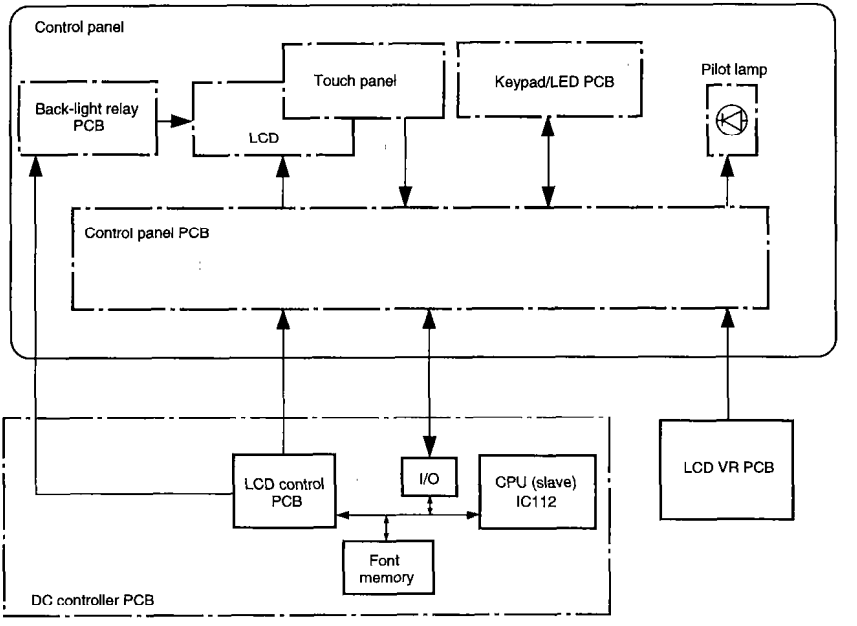


Figure 3-501

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VI. FANS

The NP6035 is equipped with three fans.
Table 3-601 shows the function of each fan and the type of filter used and the orientation of each fan.
Figure 3-602, on the other hand shows when each fan is turned ON.

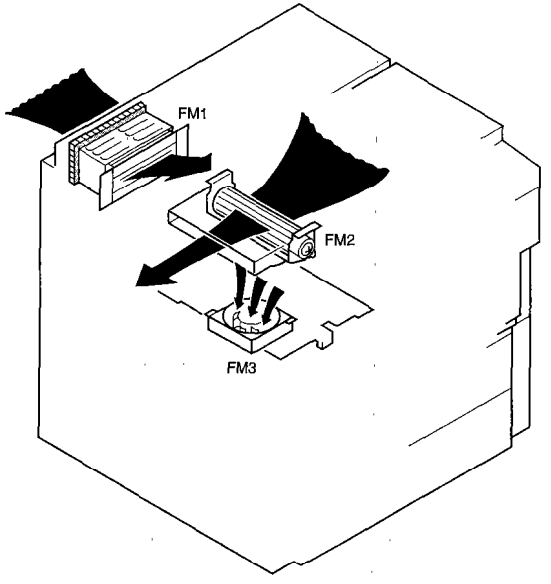


Figure 3-601

Ref.	Name	Orientation	Filter	Function
FM1	Scanner cooling fan	Blowing	Air	Cools the scanner.
FM2	Exhaust fan	Drawing	None	Cools the inside of the machine.
FM3	Feeding fan	Drawing	None	Keeps copy paper on the feeding belt.

table 3-601

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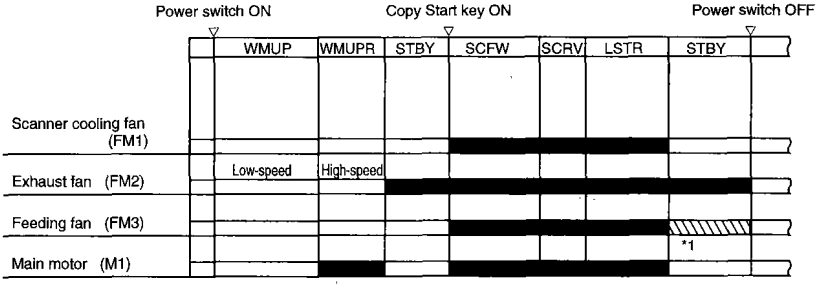
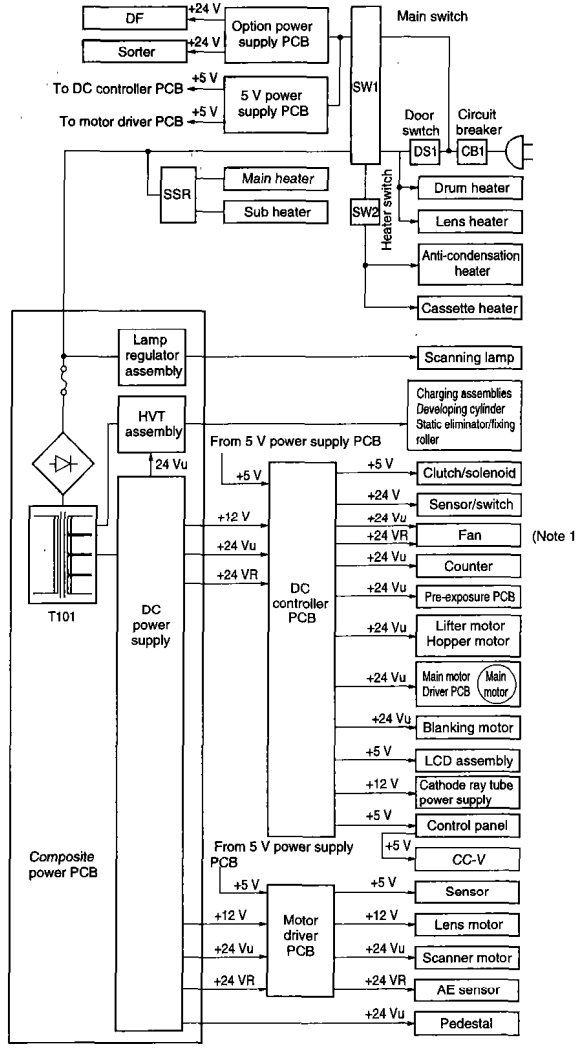


Figure 3-602

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VII. POWER SUPPLY

A. Diagram of Power Supply



Note 1: Heat exhaust fan (only), +24 VR.

Figure 3-701

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B. Power Supply Circuit

The composite power supply PCB is supplied with power when the door switch (DS1) and the power switch are turned ON. The DC controller PCB turns OFF the power switch whenever the auto power-off mechanism is activated.

The 5 V power supply PCB is supplied with AC power when the main switch (SW1) is turned ON; for this reason, the control panel remains on with the DC controller PCB being supplied with power with 5 V even when the front door is opened and the door switch (SW1) is turned off for jam removal.

The composite power supply PCB generates +24 VR, +24 VU, and +12 V; +24 VR is replaced with +17 V in standby and returns to 24 V when a load is operated in service mode or the like.

The option power supply PCB is used to supply the DF and the sorter with 24 V.

Since the DC power to the DC controller PCB will be cut when the power switch is turned OFF, a lithium battery (BAT101) is provided for backing up the RAM on the DC controller PCB.

Reference:

The DC power tolerances are as follows (during copying):

- +24 VR ±3%
- +24 VR ±10%
- +12 V ±5%
- +5 V ±5%

C. Protection of the Power Supply Circuit

The composite power supply PCB and the option power supply PCB are equipped with an overcurrent detection circuit which turns ON to stop the output in response to a short circuit caused by an error in any of the loads.

When the output stops, open the front door to turn off the door switch; then, correct the load in question, and close the front door to turn on the door switch to return the output.

Keep in mind, however, that repeated short-circuiting and resetting can blow the built-in fuse.

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VIII. SERVICE MODE

A. Outline

The NP6035's service mode is classified into the following six:

Item	Notation	Mode
* 1 *	DISPLAY	Control display mode
* 2 *	I/O DISPLAY	I/O display mode
* 3 *	ADJUST	Adjustment mode
* 4 *	FUNCTION	Functions mode
* 5 *	OPTION	Options mode
* 6 *	COUNTER	Counter mode

Table 3-801

Under each of the above modes are items discussed on the pages that follow. (Refer to the message display for specific descriptions.)

B. Using Service Mode

1) Open the front door, and insert the door swith actuator. If you want to make checks under I/O display mode while making copies, set the appropriate copying mode.
2) Press the service mode switch (SW3) with a hex key.
   - The copier will indicate '$' in the upper left corner of the message display when it has started service mode.

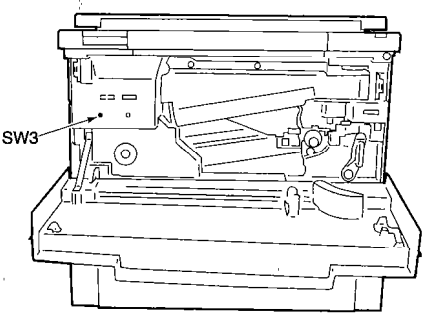


Figure 3-801

3) Press the * key twice.
   - The copier will show the Service Mode Initial screen.
4) Select the appropriate mode on the screen.
5) Using the [▷▷]/[◁◁] key, select the appropriate screen.
6) Make the appropriate check or adjustment.
7) End service mode.
   - Press the Reset key (//) once to leave the current mode.
   - Press the Reset key once again to end service mode.
   - The copier ends service mode when you turn off the power switch or disconnect the power plug. (However, opening the front door, right door, delivery door, pedestal right door, or pedestal left door will not end service mode.)

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C. Using Adjustment Mode and Options Mode

Using adjustment mode or options mode, you can store the settings made on the control panel in the RAM on the DC controller, thereby simulating the functions of the conventional VRs and SWs.

Figure 3-802 shows the label attached the front door of the copier.

Each machine is adjusted at the factory, and the effective adjustment values are recorded on the label.

If you have replaced the DC controller PCB or initialized the RAM, you must enter the values recorded on the label and the drum label attached to the front of the drum unit. Further, you must always record any values you entered newly in the field.

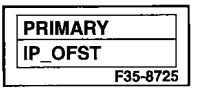


Figure 3-802

		TYP		
ADJUST 01	REGIST			
	LE_BLANK			
	FR_BLANK			
	BK_BLANK			
	TE_BLANK			
ADJUST 02	BIAS			
	PWR_OFST			
ADJUST 03	AE_SLOP			
	AE_LIGHT			
	DOC_STOP			
	BOOK_ERA			
ADJUST 04	MF_A6R			
	MF_A4R			
	MF_A4			
	C1_STMTR			
	C1_A4R			

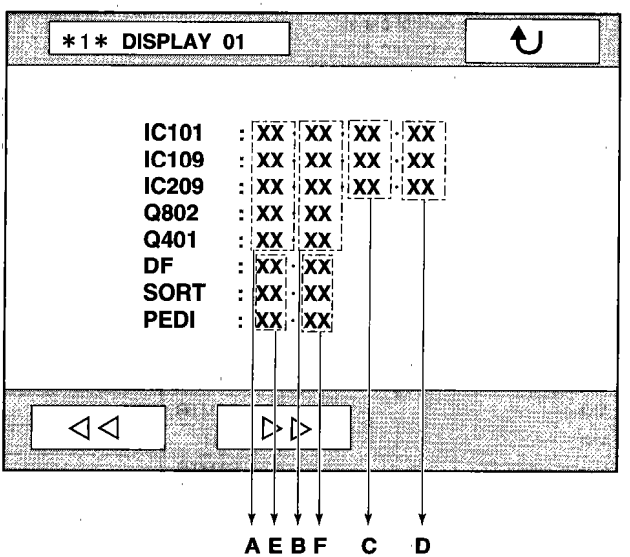
		TYP		
ADJUST 05	C2_STMTR			
	C2_A4R			
	C3_STMTR			
	C3_A4R			
ADJUST 06	C4_STMTR			
	C4_A4R			
	C5_STMTR			
	C5_A4R			
ADJUST 07	LIGHT_5			
	TRN_1			
	TRN_2DUP			
	TRN_2OVL			
	APVC_STD			
ADJUST 08	ATVC_STD			
	LMPVTUNE			
	BK_BELT			
	MF_LNGTH			

Table 3-802

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D. Control Display Mode (* 1 *)

• Using the [▷▷]/[◁◁] key, select the following screen.



A	Not used (for R&D)
B	Type of language (Table 3-804)
C	Version of ROM
D	Not used (for R&D)
E	Version of ROM
F	Not used (for R&D)

Table 3-803

• Type of Language

No.	Language	No.	Language
10	Japanese	70	Finnish
20	English	80	Italian
30	French	90	Norwegian
40	German	A0	Portuguese
50	Danish	B0	Spanish
60	Dutch	C0	Swedish

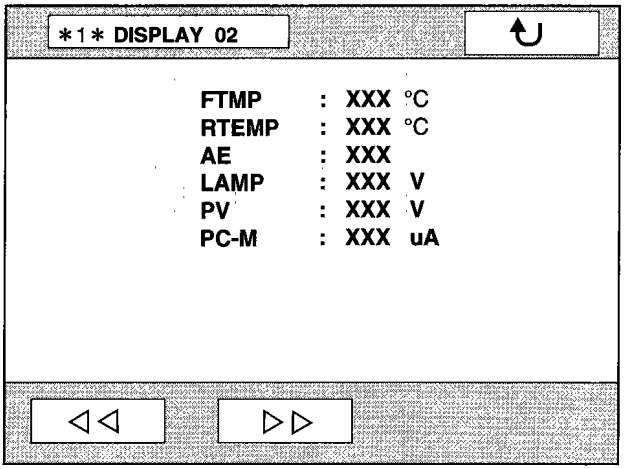
Table 3-804

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Item	Descriptions
IC101/109/209	Indicates the version of the ROM on the DC controller PCB.
Q401	Indicates the version of Q401 on the composite power supply PCB.
Q802	Indicates the version of Q802 on the control panel PCB.
DF	Indicates the version of the ROM on the RF or DF controller PCB.
SORT	Indicates the version of the ROM on the sorter controller PCB.
PEDI	Indicates the version of the ROM on the pedestal controller PCB.

Table 3-805

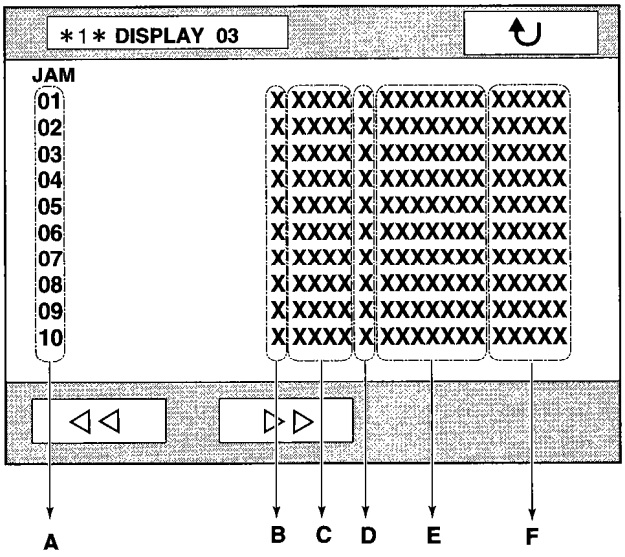
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Item	Description	Remarks
FTMP	Indicates the surface temperature of the upper fixing roller (output of thermistor TH1).	unit: °C
RTMP	Indicates the machine inside temperature (output of thermal sensor on DC controller PCB).	unit: °C
AE	Indicates the output of the AE sensor.	0 to 255
LAMP	Indicates the activation voltage of the scanning lamp.	unit: V
PV	Indicates the primary charging roller application voltage.	unit: V
PC_M	Indicates the primary application current measurement for APVC control.	unit: μA

Table 3-806

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A	Indicates the jam history (01 through 40; the higher the number, the older the jam).
B	Indicates the applicable location of the jam. (See the next page.)
C	Indicates the applicable jam code. (See the next page.)
D	Indicates the location of pick-up. (See the next page.)
E	Serves as a soft counter for pick-up by pick-up assembly.
F	Indicates the applicable paper size.

Table 3-807

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• Jam Location

0	Copier
1	RF, DF
2	Sorter
3	Pedestal

Table 3-808

• Details of Copier Jam Codes

Notation	Type of jam	Sensor
0001	Vertical path 1 delay jam (cassette 1 pick-up delay)	PS6
0002	Vertical path 2 delay jam (cassette 2 pick-up delay)	PS7
0004	Pre-registration roller delay jam	PS9
0008	Separation delay jam	PS10
0010	Delivery delay jam	PS11
0020	Delivery vertical path delay jam	PS14
0100	Vertical path 1 stationary jam (cassette 1 pick-up stationary)	PS6
0200	Vertical path 2 stationary jam (cassette 2 pick-up stationary)	PS7
0400	Pre-registration roller stationary jam	PS9
0800	Separation stationary jam	PS10
1000	Delivery stationary jam	PS11
2000	Delivery vertical path stationary jam	PS14

Table 3-809

• Pick-Up Location

1	Cassette 1
2	Cassette 2
3	Cassette 3
4	Cassette 4
5	Cassette 5
8	Multifeeder assembly
9	Duplexing unit

Table 3-810

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• Details of DF Jam Codes

Notation	Type of jam	Model
01	Original pulled out during pick-up	RF/ADF
02	Pick-up sensor delay jam	RF/ADF
03	Registration sensor delay jam	RF/ADF
05	Registration sensor stationary jam	ADF
06	Registration sensor double feeding	RF/ADF
08	Registration sensor error (failing to detect leading edge of original during pick-up)	RF
09	Registration sensor failure	ADF
08	Reversal sensor delay jam 1	RF
11	Reversal sensor stationary jam	RF
12	Reversal sensor delay jam 2	RF
13	Reversal sensor initial stationary jam	RF
20	Registration sensor reversal pick-up delay jam	RF
21	Registration sensor reversal pick-up stationary jam	RF
23	Delivery sensor delay jam	RF/ADF
41	Delivery sensor stationary jam	RF/ADF
42	Open detection	RF/ADF
81	Pick-up tray or upper cover open detection	RF/ADF
82	Original sensor error (failing to detect discharged original)	RF/ADF
84	Sensor detecting an original during pick-up	RF/ADF
85	Jam unique to test mode	ADF
88	Original detected during pick-up of the 1st original	RF/ADF
89	Re-circulating lever operating fault during original circulation (2nd circulation or later)	RF
8A	Feeding fault when feeding originals of different sizes	ADF
8B	Last original trailing edge sensor ON (sensor failing to turn off)	ADF

Table 3-811

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• Details of Sorter Jam Codes

Notation	Description
03	Paper sensor delay jam
04	Paper sensor stationary jam
05	Paper sensor timing jam
06	Stapler staple jam
07	Sensor detecting paper at power-on
08	Joint switch or cover switch OFF during copying

Table 3-812

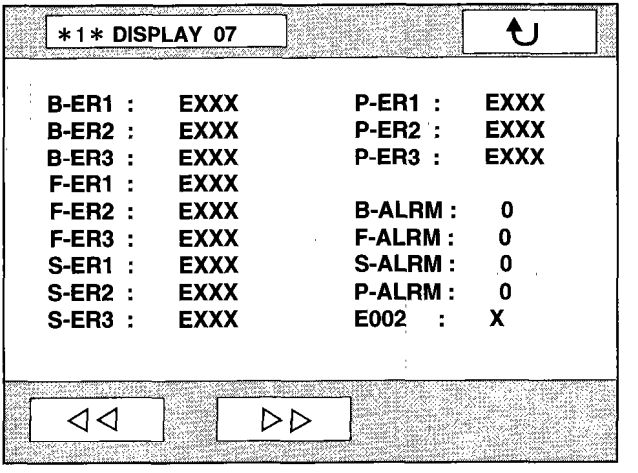
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• Details of Pedestal Jam Codes

Notation	Jam location	Sensor
01	Cassette 5 pick-up delay	PS13
02	Cassette 5 pick-up timing	
03	Cassette 4 pick-up delay	PS10
04	Cassette 4 pick-up timing	
05	Cassette 3/duplexing unit pick-up delay	PS2
06	Cassette 3/duplexing unit pick-up timing	
11	Vertical path roller 4 delay	PS10
12	Vertical path roller 4 timing	
13	Vertical path roller 3 delay	PS2
14	Vertical path roller 3 timing	
15	Vertical path roller 3 stationary	
41	No. 2 feeding assembly inlet paper sensor delay	PS7
42	No. 2 feeding paper sensor timing	PS8
43	No. 2 feeding paper sensor delay	
44	No. 2 feeding paper sensor stationary	
47	Reversing assembly paper sensor delay	PS21
48	Reversing assembly paper sensor stationary	
49	Reversing assembly sensor timing	
4A	Overlay mode reversing assembly paper sensor	
81	Vertical path sensor 3, 4, 5 stationary	PS2/PS10/PS13
82	No. 2 feeding assembly inlet stationary	PS7
83	No. 2 feeding assembly inlet, vertical path sensor 3, 4, 5 stationary	PS7/PS2/PS10/ PS13
84	No. 2 feeding, reversing assembly paper sensor stationary	PS8/PS21
85	No. 2 feeding, reversing assembly, vertical path sensor 3, 4, 5 stationary	PS8/PS21/PS2/ PS10/PS13
86	No. 2 feeding assembly inlet, No. 2 feeding assembly, reversing assembly paper sensor stationary	PS7/PS8/PS21
87	No. 2 feeding assembly inlet, No. 2 feeding assembly, reversing assembly, vertical path sensor 3, 4, 5 stationary	PS7/PS8/PS21/ PS2/PS10/PS13

Table 3-813

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Notation	Description	Remarks
B_ER1 B_ER2 B_ER3	Indicates the history (three most recent) of copier self diagnosis: B_ER1: most recent B_ER2: second most recent B_ER3: third most recent	See "Self Diagnosis."
F_ER1/2/3	Indicates the history (three most recent) of feeder self diagnosis.	See "Self Diagnosis."
S_ER1/2/3	Indicates the history (three most recent) of sorter self diagnosis.	See "Self Diagnosis."
P_ER1/2/3	Indicates the history (three most recent) of pedestal self diagnosis.	See "Self Diagnosis."
B_ALRM	Indicates a copier alarm message. (Table A)	See Table 3-815.
F_ALRM	Indicates a feeder alarm message. (Tale B)	See Table 3-816.
S_ALRM	Indicates a sorter alarm message. (Tale C)	See Table 3-818.
P_ALRM	Indicates a pedestal alarm message. (Table D)	See Table 3-819.
E002	Indicates the type of E002. (Table E)	See Table 3-820.

Table 3-814

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• Details of Copier Alarm Codes

Notation	Description
0001	Cassette 1 lifter fails to move up
0002	Cassette 2 lifter fails to move up

Table 3-815

• Details of DF Alarm Codes

Notation	Description
01	The re-circulating lever has swung idly.
02	The original end sensor does not detect an original.
03	Separation has failed during original pick-up.
04	The original has moved askew during original pick-up.
05	The original has overridden the paper stopper plate during original pick-up.
11	The number of originals is different after jam removal.
12	The number of originals is excessive.
13	The original has been pulled out in the middle.

Table 3-816

• Details of Sorter Alarm Codes

Notation	Description
01	The stapler has stopped operation.
02	A staple jam has occurred.
05	The number of sheets stacked for stapling is excessive.
06	The number of sheets stacked for stapling is excessive.
07	The sheets are of different sizes (horizontally).
08	The stapler unit is absent.
09	Stapled paper remains in the bin.
0A	Staples are absent.

Table 3-817

• Details of Sorter Alarm Codes

Notation	Description
11	The paper folding unit has been turned off.
12	The number of sheets stacked for sorting is excessive.

Table 3-818

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• Details of Pedestal Alarm Codes

Notation	Display
0001	The cassette 3/4/5 lifter fails to move up.

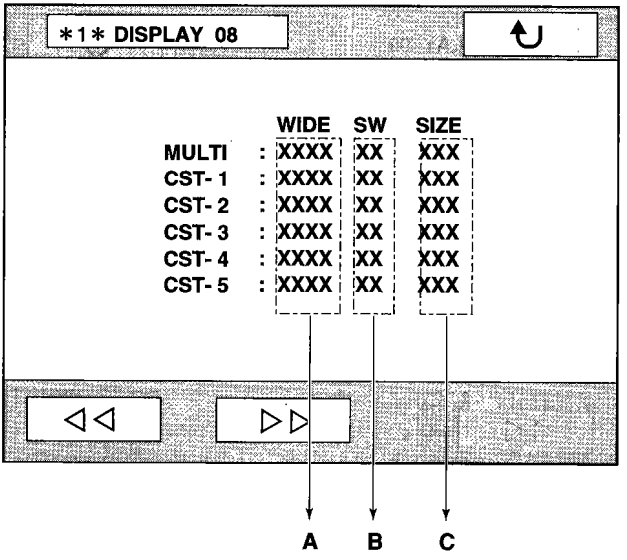
Table 3-819

• Details of KE002 (detection temperature)

Service mode notation	Detection temperature
1	40 ~ 75
2	75 ~ 100
3	100 ~ 120
4	120 ~ 140
5	140 ~ 160
6	160 ~ 170
7	170 ~ 180
8	180 ~ 185
9	185 ~ 190

Table 3-820

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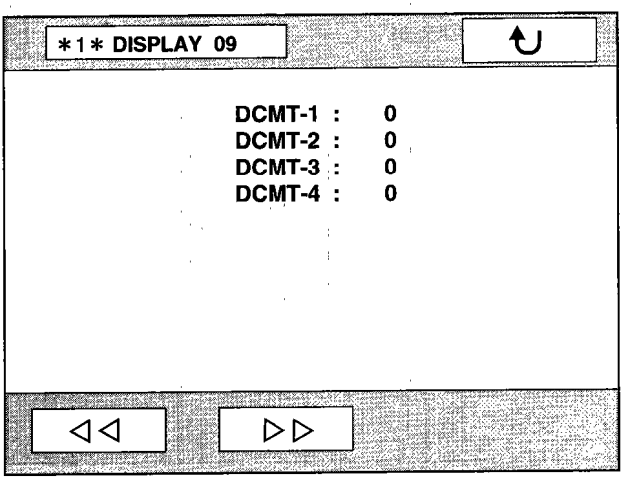
A	Indicates the output of the paper width sensor. (analog)
B	Indicates the output of the paper length sensor. (1, 0)
C	Indicates the paper width. (mm)

Table 3-821

Notation	Description	Remarks
MULTI	Indicates the dimensions of the copy paper in each cassette or the multifeeder and the output of the paper size sensor.	
CST_1	CST_1: cassette 1	
CST_2	CST_2: cassette 2	
CST_3	CST_3: cassette 3 CST_4: cassette 4	
CST_4	CST_5: cassette 5	
CST_5	WIDE: output of paper width sensor (analog) SW: output of paper length sensor (1, 0) SIZE: paper width (mm)	

Table 3-822

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Notation	Description	Remarks
DCMET1	Indicates the output of the original size sensor 1.	With the copyboard cover open, turn on the copyboard cover open/closed sensor (PS18); the output of the sensors detecting an original at such times should change from '1' to '0'.
DCMET2	Indicates the output of the original size sensor 2.	
DCMET3	Indicates the output of the original size sensor 3.	
DCMET4	Indicates the output of the original size sensor 4.	

Table 3-823

AB-Configuration Inch-Configuration A-Configuration

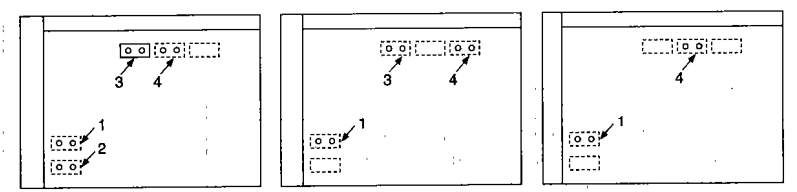
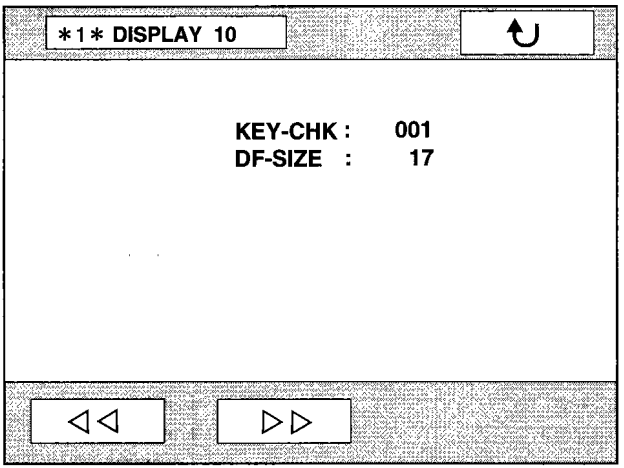


Figure 3-803

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Item	Description	Remarks
KEY_CHK	Use it to check the keys on the control panel.	See Table 3-825.
DF_SIZE	Use it to check the size of the original detected by the RF or the ADF.	See Table 3-826.

Table 3-824

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Notation	Key	Notation	Key
000	Sorter key	023	Keypad key 8
001	Copy Density key (lighter)	024	Keypad key 9
002	AE key	025	Clear key
003	Copy Density key (darker)	026	Keypad key 0
004	Reduce key	027	ID key
005	Direct key	028	Pre-Heat key
006	Enlarge key	029	Zoom key
007	Paper Select key	030	Auto Ratio key
009	[^] key	031	Two-Sided key
010	[v] key	032	Page Separate key
012	OK key	033	Overlay key
013	Stop key	034	Image Compose Reduce key
014	Start key	035	Bind key
015	Interrupt key	036	Frame Erase key
016	Keypad key 1	037	Cover key
017	Keypad key 2	038	Mode Memory key
018	Keypad key 3	039	[*] key
019	Keypad key 4	045	Mixed Size key
020	Keypad key 5	046	Image Compose Enlarge key
021	keypad key 6	047	Transparency Interleaf key
022	Keypad key 7		

Note: A press on the Reset key changes screens and is not included in the table.

Table 3-825

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① **Size Detection (A/B-configuration feeding direction only, no default)**

Notation	Original size	(unit: mm)	Slice level (unit: mm)	
			ADF-B1	RF-C1
17	A5	148 × 210	165	175
1	B5	182 × 257	196	203
3	A4	210 × 297	234	250
4	B5R	257 × 182	277	290
6	A4R	297 × 210	314	323
2	FOOLSCAP	330 × 216	347	359
5	B4	364 × 257	377	384
23	COMPUTER	381 × 279	400	415
7	A3	420 × 297		

Table 3-826a

② **Size Detection (Inch-configuration feeding direction only, no default)**

Notation	Original size	(unit: mm)	Slice level (unit: mm)	
			ADF-B1	RF-C1
9	STMT	140 × 216	172	163
11	LTR	216 × 279	235	260
14	LTRR	279 × 216	305	310
2	FOOLSCAP	330 × 216	347	351
13	LGL	356 × 216	369	376
23	COMPUTER	381 × 279	407	427
15	11 × 17	432 × 279		

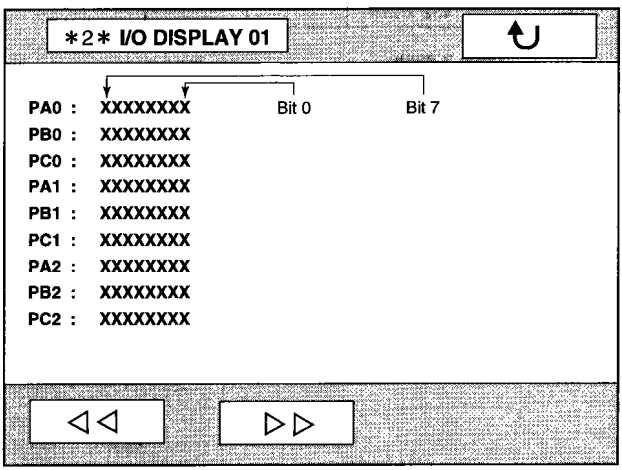
Table 3-826b

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E. I/O Display Mode (* 2 *)

- Using the [▷▷]/[◁◁] key, select the appropriate screen.
- You may check the 8-bit input/output of each port.

Address	Description	Screen
PA0 ~ PC2	Input/output port of the CPU (IC108) on the PCB	01
MP7 ~ MPC	Input/output port of the CPU (IC110) of the master CPU on the PCB	02
IPC0 IPC1	Input/output port of the IPC on the DC controller PCB	02
SP4 ~ SPC	Input/output port of the slave CPU (IC112) on the DC controller PCB	03
PD-0 ~ PD-AD2	Input/output port of the CPU on the pedestal controller PCB	08 09
DF-A ~ DF-7	Input/output port of the CPU on the DF controller PCB	04 05
ST-A ~ ST-AD7	Input/output port of the CPU on the sorter controller PCB	06 07



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1. Copier

Address	bit	Description	Signal	Jack	Remarks
PA0	0	Scanner cooling fan (FM1) drive signal	FM1D*	J105-A4	0 : FM1 ON
(output)	1	Main motor (M1) drive signal	M1D	J113-A12	1 : M1 ON
	2	Pre-exposure lamp (LA2) drive signal	PEXP*	J110-B8	0 : LA2 ON
	3	Exhaust fan (FM2) drive signal	FM2D}	J111-B1	0 : FM2 ON
	4	Feeding fan (FM3) drive signal	FM3D3	J111-A2	0 : FM3 ON
	5	Feeding fan drive voltage switching signal	—	J111-A1	0 : 12V
	6	—	—	—	—
	7	Delivery flapper solenoid (SL5) drive signal	SL5D*	J113-B1	0 : SL5 ON
PB0	0	Registration roller clutch (CL1) drive signal	CL1D*	J105-A1	0 : CL1 ON
(output)	1	Registration roller clutch (CL1) application voltage switching signal	—	J105-A2	1 : 24V 0 : 12V
	2	Cassette 1 lifter motor (M4) drive signal	M4D	J112-B6	1 : M4 ON
	3	Cassette 2 lifter motor (M5) drive signal	M5D	J113-B13	1 : M5 ON
	4	Fixing main hear (H1) drive signal	MHRD	J112-B2	1 : H1 ON
	5	Fixing sub heater (H2) drive signal	SHRD	J112-B3	0 : H2 ON
	6	Web solenoid (OSL3) drive signal	SL3D*	J112-B11	0 : SL3 ON
	7	Hopper motor (M3) drive signal	M3D	J112-B8	1 : M3 ON
PC0	0	Right door open/closed sensor (PS19) signal	RDC	J107-A11	1 : door open
(input)	1	Multifeeder paper sensor (PS8) signal	MFPD*	J104-A6	0 : paper present
	2	Cassette 1 paper sensor (PS2) signal	C1PD	J107-A8	1 : paper present
	3	Cassette 2 paper sensor (PS5) signal	C2PD	J108-B2	1 : paper present
	4	Cassette 1 lifter sensor (PS4) signal	C1LTP*	J107-A5	0 : cassette 1 lifter up
	5	Cassette 2 lifter sensor (SP3) signal	C2LTP*	J108-B5	0 : cassette 2 lifter up
	6	Feeding assembly paper sensor (PS24)	PDP5*	J111-A9	0 : paper present
	7	Control card detection signal	CCDT*	J109-B3	0 : control card present

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Address	bit	Description	Signal	Jack	Remarks
PA1 (output)	0	Cassette 1 pick-up releasing solenoid (SL1) drive signal	SL1D*	J107-B6	1 : SL1 ON
	1	Cassette 2 pick-up releasing solenoid (SL2) drive signal	SL2D*	J108-B8	1 : SL2 ON
	2	Cassette 1 pick-up clutch (CL2) drive signal	CL2D*	J107-B4	1 : CL2 ON
	3	Cassette 2 pick-up clutch (CL3) drive signal	CL3D*	J108-A2	1 : CL3 ON
	4	Vertical path 1 clutch (CL4) drive signal	CL4D*	J107-B2	1 : CL4 ON
	5	Vertical path 2 clutch (CL5) drive signal	CL5D*	J108-A4	1 : CL5 ON
	6	Multifeeder pick-up solenoid (SL6) drive signal	SL6D*	J104-A8	1 : SL6 ON
	7	Multifeeder pick-up clutch (CL6) drive signal	CL6D*	J104-A10	1 : CL6 ON
PB1 (output)	0	Signal from master CPU to slave CPU	DPREQ	—	—
	1	—	—	—	—
	2	High-voltage CPU REQ	HVREQ	J114-A10	—
	3	Signal (command line) from DC controller PCB to composite power supply PCB	HVCMD0	J114-B1	—
	4		HVCMD1	J114-B2	—
	5		HVCMD2	J114-B3	—
	6	Counter signal 1	CNT1D*	J112-A12	0 : count up
	7	Counter signal 2	CNT2D*	J113-B10	0 : count up
PC1 (input)	0	Vertical path roller 1 paper sensor (PS6) signal	PDP1	J107-A2	1 : paper present
	1	Vertical path roller 2 paper sensor (PS7) signal	PDP2	J108-A6	1 : paper present
	2	Pre-registration paper sensor (PS9) signal	PDP3	J113-A9	1 : paper present
	3	Separation sensor (PS10) signal	PDP4*	J111-A11	0 : paper present
	4	Delivery sensor (PS11) signal	PDP5*	J113-B4	0 : paper present
	5	Delivery sensor (PS11) signal	—	J113-B4	0 : paper present
	6	Duplexing unit inlet paper sensor (PS14) signal	VPDT	J110-B12	0 : paper present
	7	High-voltage CPU ACK	—	J114-A9	0 : ACK

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Address	bit	Description	Signal	Jack	Remarks
PA2 (output)	0	Signal (data line) from DC controller PCB to composite power supply PCB	HVDATA0	J114-A1	—
	1		HVDATA1	J114-A2	—
	2		HVDATA2	J114-A3	—
	3		HVDATA3	J114-A4	—
	4		HVDATA4	J114-A5	—
	5		HVDATA5	J114-A6	—
	6		HVDATA6	J114-A7	—
	7		HVDATA7	J114-A8	—
PB2 (input/output)	0	Scanner home position sensor (PS1) signal	SCHP	J110-A14	1 : at HP
	1	Scanning lamp (LA1) ON detection signal	LAMPD	J114-B9	1 : LA ON
	2	Auto power-off open circuit detection	PWOFFD	J112-A1	1 : open 1 : OK
	3	Main motor constant speed state signal	LOCK	J113-A13	0 : locked
	4	Main heater SSR drive detection signal	MSSRD	J112-B1	1 : ON
	5	Sub heater SSR drive detection signal	SSSRD	J112-B4	1 : ON
	6	Main counter open circuit detection	CNT1D*	J112-A12	0 : open
	7	Option counter open circuit detection	CNT2D*	J113-B10	0 : open
PC2 (input)	0	—	—	—	—
	1	Waste toner full sensor (PS15) signal	TN_OUT	J105-A10	0 : alternates between 1 and 0 when full
	2	—	—	—	—
	3	—	—	—	—
	4	—	—	—	—
	5	Front door open/closed detection signal (DS1)	DS1DT	J112-A5	1 : door open
	6	Counter select signal	CNTSEL1	J113-B7	0 : SWON
	7	Counter select signal	CNTSEL2	J113-B8	0 : SWON

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Address	bit	Description	Signal	Jack	Remarks
MP7	0	Fixing thermistor (TH1) signal	TH1	J112-A3	analog
	1	APVC current value	—	J901-8	analog
	2	AE sensor signal	AE	J116-B6	analog
	3	—	—	—	—
	4	Cassette 1 paper width detecting VR (SVR1) signal	C1PW	J104-B11	analog
	5	Cassette 2 paper width detecting VR (SVR2) signal	C2PW	J104-B14	analog
	6	Multifeeder 3 paper width detecting VR (SVR3) signal	MFPW	J104-A13	analog
	7	Ambient sensor signal	LASIG	—	analog
MP8	0	Main motor clock pulse signal	CLKP	J113-A14	—
	1	Scanner HP detection signal	SCHP	J110-A14	1 : at HP
	2	—	—	—	—
	3	—	—	—	—
	4	—	—	—	—
	5	—	—	—	—
	6	—	—	—	—
	7	—	—	—	—
MP9	0	Signal (error command) from composite power supply PC to Dc controller PCB	ECMD2	J114-B4	—
	1	—	—	—	—
	2	Signal (error command) from composite power supply PCB to DC controller PCB	EDMD1	J114-B5	—
	3	—	—	—	—
	4	Signal (error command) from composite power supply PCB to DC controller PCB	ECMD0	J114-B6	—
	5	—	—	—	—
	6	—	—	—	—
	7	—	—	—	—

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Address	bit	Description	Signal	Jack	Remarks
MP7	0	Delivery vertical path roller drive motor drive signal A	—	J117-6	alternates between 1 and 0 while ON
	1	Delivery vertical path roller drive motor drive signal B	—	J117-5	
	2	Delivery vertical path roller drive motor drive signal A*	—	J117-2	
	3	Delivery vertical path roller drive motor drive signal B*	—	J117-1	
	4	—	—	—	—
	5	Primary charging roller cleaning solenoid (SL7) drive signal	SL7D*	J105-B13	1 : SL7 ON
	6	Transfer roller locking/releasing solenoid (SL7) drive signal	SL8D*	J111-A9	1 : SL8 ON
	7	Blanking shutter solenoid (SL4) drive signal	SL4D	J110-B10	1 : SL4 ON
MP8	0		—	—	—
	1		—	—	—
	2		—	—	—
	3		—	—	—
	4		—	—	—
	5		—	—	—
	6		—	—	—
	7		—	—	—
MP9	0	Control card	CCD*	J111-B5	0 : control card absent
	1	Auto power-off drive signal	PWOFF*	J112-A1	0 : OFF
	2	—	—	—	—
	3	—	—	—	—
	4	—	—	—	—
	5	—	—	—	—
	6	—	—	—	—
	7	—	—	—	—

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Address	bit	Description	Signal	Jack	Remarks
IPC0	0	Cassette 1 paper length sensor (SWU1) signal	C1SZ1	J104-B2	0 : PS101 ON
	1		C1SZ2	J104-B1	0 : PS102 ON
	2	Cassette 2 paper length sensor (SWU2) signal	C2SZ1	J104-B6	0 : PS103 ON
	3		C2SZ2	J104-B5	0 : PS104 ON
	4	—	—	—	—
	5	—	—	—	—
	6	—	—	—	—
	7	—	—	—	—
IPC1	0	Pedestal control signal 0	PDCNT0	J113-A1	—
	1	Pedestal control signal 1	PDCNT1	J113-A2	—
	2	—	—	—	—
	3	—	—	—	—
	4	Scanner motor current switching signal 1	OMDOWN1	J116-A2	—
	5	Scanner motor current switching signal 2	OMDOWN2	J116-A3	—
	6	—	—	—	—
	7	—	—	—	—

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Address	bit	Description	Signal	Jack	Remarks
SPA	0	—	—	—	—
	1	—	—	—	—
	2	Lens X motor (M6) drive signal	LEXA	J116-B1	alternates between 1
	3		LEXB	J116-B2	and 0 when ON
	4	—	—	—	—
	5	—	—	—	—
	6	Lens Y motor (M7) drive signal	LEYA	J116-B11	
	7		LEYB	J116-B10	
SPB	0	Blanking shutter (front) motor (M8) drive	BLFA	J110-B1	alternates between 1
	1	signal	BLFB	J110-B4	and 0 when ON
	2	—	—	—	—
	3	—	—	—	—
	4	Blanking shutter (rear) motor (M9) drive signal	BLBA	J110-A1	
	5		BLBB	J110-A4	
	6	—	—	—	—
	7	—	—	—	—
SPC	0	Lens X motor (M6) hold signal	LEXHLD	J116-B3	1 : 24 V 0 : 5 V
	1	Lens Y motor (M7) hold signal	LEYHLD	J116-B9	1 : 24 V 0 : 5 V
	2	—	—	—	—
	3	—	—	—	—
	4	—	—	—	—
	5	—	—	—	—
	6	—	—	—	—
	7	Lens X home position sensor (PS16) signal	LXHP	J116-A1	1 : at HP

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Address	bit	Description	Signal	Jack	Remarks
PS4	0	—	—	—	—
	1	Back-light ON signal	B-L-ON*	J111-B4	0 : light ON
	2	Original size sensor ON/OFF	DSIZEON	J105-B1	1 : ON
	3	Copyboard cover open/closed sensor (PS18) signal	CBCC	J105-A7	1 : closed
	4	Original size sensor 1 (PS20) signal	SZ0*	J105-B2	0 : original present
	5	Original size sensor 2 (PS21) signal	SZ1*	J105-B5	0 : original present
	6	Original size sensor 3 (PS22) signal	SZ2*	J105-B8	0 : original present
	7	Original size sensor 4 (PS23) signal	SZ3*	J105-B11	0 : original present
PS7	0	DIP SW4	—	—	—
	1	DIP SW3	—	—	—
	2	DIP SW2	—	—	—
	3	DIP SW1	—	—	—
	4	Service switch signal	SERVICE*	J112-A11	0 : switch ON
	5	—	—	—	—
	6	—	—	—	—
	7	—	—	—	—
PS8	0	Control panel TXD signal	CPTXD	J109-B3	—
	1	—	—	—	—
	2	Control panel RXD signal	CPRXD	J109-B1	—
	3	—	—	—	—
	4	Blanking shutter motor (M9, M8) hold signal	BLHLD	J109-A3	1 : on hold
	5	—	—	—	—
	6	—	—	—	—
	7	—	—	—	—
PS9	0	Lens Y home position sensor (SP17) signal	LYHP	J117-B8	1 : at HP
	1	Blanking shutter (font) home position sensor (PS12) signal	BLFHP	J110-A8	1 : at HP
	2	Blanking shutter (rear) home position sensor (PS13) signal	BLBHP	J110-A11	1 : at HP
	3	—	—	—	—
	4	—	—	—	—
	5	—	—	—	—
	6	—	—	—	—
	7	—	—	—	—

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2. ADF

Address	I/O	bit	Description	Signal	Jack	Remarks
DF_A	I	0	Cover open/closed sensor (MS2) signal	UPCC*	J3-2	0 : open
	I	1	ADF open/closed sensor (MS1) signal	DFC*	J2-3	0 : open
	O	2	LED1 ON signal (PCB internal signal)	—	—	0 : ON
	O	3	LED2 ON signal (PCB internal signal)	—	—	0 : ON
	I	4	Pick-up roller sensor (S3) signal	PUSP*	J8-7A	1 : detected
	I	5	Pick-up sensor (S5) signal	PDP1	J9-1	1 : detected
	I	6	Pick-up sensor (S1) signal	PDP3	J10-2	0 : ON
	O	7	LED 3 ON signal (PCB internal signal)	—	—	1 : ON
DF_B	O	0	Original set LED ON signal	DSD*	J8-4B	1 : ON
	O	1	Pick-up motor (M2) drive signal	PUMD	J7-1	1 : ON
	O	2	Delivery motor (M3) drive signal	DMD	J6-1	1 : ON
	O	3	Belt motor clock pulse	—	—	1 : ON
	O	4	Belt feeding motor (M1) drive signal	BMD	J5-1	1 : ON
	O	5	Bake (Bk) drive signal	BKD	J4-1	1 : ON
	O	6	Paper retaining plate solenoid (SL1) drive signal	WGTSLD*	J9-7	1 : ON
	O	7	Stopper plate solenoid (SL2) dive signal	STPSLD	J12-1	1 : ON
DF_C	I/O	0	Communication signal	—	—	
	I/O	1	Communication signal	—	—	
	I/O	2	Communication signal	—	—	
	I/O	3	Delivery motor clock pulse signal	—	—	
	I/O	4	PCB internal signal	—	—	
	I/O	5	PCB internal signal	—	—	
	I/O	6	Communication signal	—	—	
	I/O	7	Communication signal	—	—	
DF_EA		0	—	—	—	
		1	—	—	—	
		2	—	—	—	
		3	—	—	—	
		4	—	—	—	
		5	—	—	—	
		6	—	—	—	
		7	—	—	—	

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Address	I/O	bit	Description	Signal	Jack	Remarks
DF_EB		0	—	—	—	
		1	—	—	—	
		2	—	—	—	
		3	—	—	—	
		4	—	—	—	
		5	—	—	—	
		6	—	—	—	
		7	—	—	—	
DF_AD1	I	—	Original stop position adjusting VR	—	—	in hex notation
DF_AD2	I	—	DIP SW 3, 4	—	—	
DF_AD3	I	—	DIP SW 1, 2	—	—	
			Push switch			
DF_AD4	I	—	2-on-1 paper adjusting VR	—	—	
DF_AD5	I	—	Serial communication detection	—	—	
DF_AD6	I	—	Last original trailing edge sensor (S8) signal	DED	J8-3B	
DF_AD7	I	—	Original sensor (S6) signal	DEP	J11-2	
DF_AD8						

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3. RF

Address	I/O	bit	Description	Signal	Jack	Remarks
DF_A	O	0	Re-circulating motor drive signal	RMD*	J8-6	1 : ON
	O	1	Original set indicator LED ON signal	DSD*	J8-4	1 : ON
	O	2	Clutch drive signal	CLD*	J13-2	1 : ON
	O	3	Brake drive signal	BKD*	J6-2	1 : ON
	O	4	Stopper plate solenoid drive signal	STPSLD*	J5-4	1 : ON
	O	5	Paper deflecting pale sound drive signal	DFSLD*	J4-2	1 : ON
	O	6	PCB internal signal	—	—	—
	—	7	DF_B	—	—	—
DF_B	—	0	—	—	—	—
	O	1	Belt motor clock pulse	—	TP1-1	—
	O	2	Belt motor direction switching signal	—	—	—
	O	3	Belt motor drive signal	—	—	—
	O	4	Feeding moor drive signal	FMD	TP2-4	—
	O	5	Feeding motor short brake signal	—	—	—
	O	6	Pick-up motor drive signal	PUMD	J12-1	1 : ON
	O	7	Paper retaining plate solenoid drive signal	WSLD*	J5-2	0 : ON
DF_C	I/O	0	Communication signal	—	—	—
	I/O	1	Communication signal	—	—	—
	I/O	2	PCB internal signal	—	—	—
	I	3	Belt motor clock sensor signal	BMCLK	J9-23	—
	I/O	4	PCB internal signal	—	—	—
	I/O	5	PCB internal signal	—	—	—
	I/O	6	PCB internal signal	—	—	—
	I/O	7	PCB internal signal	—	—	—
DF_EA	I	0	Reversal sensor signal	PDP5	J9-17	1 : paper present
	I	1	Pick-up roller sensor signal	PUSP	J9-8	1 : roller at HP
	I	2	Pick-up sensor signal	PDP1	J9-14	1 : paper present
	I	3	Delivery sensor signal	PDP1	J9-11	1 : paper present
	I	4	Re-circulating sensor signal	LDD	J8-2	0 : bar on original
	I	5	LED1 ON signal	—	—	—
	I	6	LED2 ON signal	—	—	—
	I	7	LED3 ON signal	—	—	—

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Address	I/O	bit	Description	Signal	Jack	Remarks
DF_EB	I	0	DIP switch setting	—	—	—
	I	1	DIP switch setting	—	—	—
	I	2	DIP switch setting	—	—	—
	I	3	DIP switch setting	—	—	—
	I	4	DIP switch setting	—	—	—
	I	5	DIP switch setting	—	—	—
	I	6	DIP switch setting	—	—	—
	I	7	Editor setting	—	—	0 : editor set
DF_AD1			—	—	—	in hex notation
DF_AD2			Registration sensor signal	PDP3	JP-25	
DF_AD3			—	—	—	
DF_AD4			Original sensor signal	DEP1	J5-5	
DF_AD5			Push switch signal	—	—	
DF_AD6			RF switch signal	RFC	J2-6	
DF_AD7			Upper cover sensor signal	UPCC1*	J9-30	
DF_AD8			—	—	—	

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4. Stapler Sorter-C1

Address	bit	Description	Signal	Jack	Remarks
ST_A	0	Not used			
	1	Stapling home position sensor (P112)	SPL_HP	J11-3	1 : HP for stapling
	2	Stapler unit swing sensor (MS9) signal	SWGSET	J8-5	1 : HP or stapling position
	3	Stapler cover open/closed sensor (MS5)	SPLOPN	J10-3	1 : cover open
	4	Guide bar home position sensor (P17) signal	SGBHP	J12-6	1 : at HP
	5	Lead cam home position sensor (P15) signal	LCHP	J14-5	1 : at HP
	6	Not used			
	7	Not used			
ST_B	0	Guide bar swing motor (M3) phase A excitation signal	MA*	J13-3.5	alternates between 1 and 0 while ON
	1	Guide bar swing motor (M3) phase B excitation signal	MB*	J13-4.6	
	2	Guide bar swing motor (M3) drive signal	MON	J13-2	1 : motor ON
	3	Stapling motor (M4) CW rotation signal	SPLMFW*		0 : CW
	4	Stapling motor (M4) CCW rotation signal	SPLMRV*		0 : CCW
	5	Switch-back path solenoid (SL1) drive signal	SBPSLD*	J7-9	0 : SL1 ON
	6	Paper path switching solenoid (SL2) drive signal	PSLD	J7-8	0 : SL2 ON
	7	Paper retaining solenoid (SL3) drive signal	PHSLD*	J5-2	0 : SL3 ON

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Address	bit	Description	Signal	Jack	Remarks
ST_C	0	Motor switching signal	—	—	
	1	Stapling ready indicator ON signal	SPLOK	J8-4	1 : LED ON
	2	Bin paper sensor LED ON signal	BPD	J12-2	
	3	Motor clock signal	—	—	
	4	Stapler unit swing motor (M5) drive signal	SWGMD*	J9-1	1 : M5 ON
	5	Feeding motor clock sensor (P16) signal	FMCLK	J5-4	
	6	Not used			
	7	Feeding motor (M1) brake signal	—	—	1 : M1 OFF
ST_EA	0	Stapling position paper sensor signal	SPD	—	1 : paper present
	1	Not used	—	J8-8	
	2	Manual staple key signal	MNSPL*	J8-1	0 : switch ON
	3	Non-sort paper sensor signal	NSPEXT*	J7-5	0 : paper present
	4	Sort paper sensor signal	SPEXT*	J7-2	0 : paper present
	5	Bin unit home position sensor signal	BHP	J14-2	1 : unit at HP
	6	Joint sensor signal	SOP*	J2-2	0 : sorter released
	7	Reset signal	—	—	
ST_EB	0	Stapler position set sensor signal	SPLSET	J10-6	0 : stapling position
	1	Not used			
	2	Not used			
	3	Not used			
	4	Not used			
	5	Not used			
	6	Not used			
	7	Not used			
ST_AD0	—	DIP switch 3, 4	—	—	in hex notation
ST_AD1	—	DIP switch 1, 2	—	—	
ST_AD2	—	Shift test switch upper/lower	—	—	
ST_AD3	—	Jumper 1, 2	—	—	
ST_AD4	—	Staple sensor	—	—	
ST_AD5	—	Not used	—	—	
ST_AD6	—	Bin paper sensor	—	—	
ST_AD7	—	24 V power supply monitor	—	—	

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5. Stapler Sorter-B2

Address	I/O	bit	Description	Signal	Jack	Remarks
ST_A	I	0	Stapler door open signal	SPLOPN	J3-7	1 : open
	I	1	Joint switch open signal	SOP	J3-5	1 : open
	I	2	Lead cam sensor signal	LCHP	J8-2	
	O	3	Staple absent LED ON signal	HKEMP	J7-10	0 : staple absent
	I	4	Shift home position signal	—	—	1 : HP
	I	5	Guide bar home position signal	SGBHP	J4-6	1 : HP
	I	6	Stapling timing sensor signal	SPLACT	J7-4	
	I	7	Stapler home position signal	SPLHP	J7-1	1 : HP
ST_B	O	0	Guide bar motor drive signal	B*	—	alternates between 1 and 0 while ON
	O	1	Guide bar motor drive signal	B	—	
	O	2	Guide bar motor drive signal	A*	—	
	O	3	Guide bar motor drive signal	A	—	
	O	4	Guide bar motor ON signal	—	—	1 : ON
	O	5	Watch dog	—	—	
	O	6	Manual staple LED ON signal	SPLOK*	J7-9	0 : ON
	O	7	Stapling motor drive signal	SPLMD	J3-2	1 : ON
ST_C	O	0	Communication signal	—	—	
	I	1	Communication signal	—	—	
	O	2	Bin shift up signal	—	—	1 : up
	O	3	Bin shift down signal	—	—	1 : down
	I	4	Communication signal	—	—	
	I	5	Feeding motor clock pulse	FMCLK	J8-5	
	O	6	Communication signal	—	—	
	O	7	Feeding motor drive signal	FMD	J6-2	1 : ON
ST_AD0	—	—	—	—	—	in hex notation
ST_AD1	—	—	—	—	—	
ST_AD2	—	—	—	—	—	
ST_AD3	I	—	Staple absent detection adjusting VR	—	—	
ST_AD4	I	—	24 V monitor	—	—	
ST_AD5	I	—	Bin paper sensor signal	BPD	J4-4	
ST_AD6	I	—	Staple absent current value (high current area)	—	—	
ST_AD7	I	—	Staple absent current value (low current area)	—	—	

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6. Pedestal

Address	bit	Description	Signal	Jack	Remarks
PD_0 (output)	0	—	—	—	—
	1	—	—	—	
	2	—	—	—	
	3	—	—	—	
	4	Paper jogging guide motor drive signal (duplexing unit)	A	J104-B11	alternates between 1 and 0
	5	Paper jogging guide motor drive signal (duplexing unit)	B	J104-B14	
	6	Paper jogging guide motor drive signal (duplexing unit)	A*	J104-B12	
	7	Paper jogging guide motor drive signal (duplexing unit)	B*	J104-B15	
PD_1 (output)	0	Pick-up roller 3 releasing solenoid drive signal (cassette pedestal)	C3RR*	J106-10	0 : ON
	1	Pick-up roller 4 releasing solenoid drive signal	C4RRL*	J112-B8	0 : ON
	2	Pick-up roller 5 releasing solenoid drive signal	C5RRL*	J114-B8	0 : ON
PD_1 (input)	3	Pedestal constant speed state signal	PLOCK	J109-2	0 : constant
	4	Cassette 4 paper length sensor signal 1	C4SZ1	J112-A4	1 : SW101 ON
	5	Cassette 4 paper length sensor signal 2	C4SZ2	J112-A10	1 : SW101 ON
	6	Cassette 5 paper length sensor signal 1	C5SZ1	J113-2	1 : SW101 ON
	7	Cassette 5 paper length sensor signal 2	C5SZ2	J113-1	1 : SW101 ON
PD_2 (input)	0	—	—	—	—
	1	Communication signal (with copier)	FEED-STOP	J102-4	—
	2	—	—	—	—
	3	—	—	—	—
	4	Holding tray paper detection	TRPD	J104-A7	0 : paper present
	5	Cassette 3 paper detection signal (cassette pedestal)	C3PD	J106-4	1 : paper present
	6	Cassette 4 paper detection signal	C4PD	J112-A5	1 : paper present
	7	Cassette 5 paper detection signal	C5PD	J114-A5	1 : paper present

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Address	bit	Description	Signal	Jack	Remarks
PD_3 (output)	0	Stacking guide plate trailing edge guide solenoid drive signal (duplexing unit)	SL4D*	J104-B2	1 : ON
	1	Holding tray feeding clutch drive signal (duplexing unit)	CL10D*	J104-B4	1 : ON
	2	L paper deflecting drive signal (duplexing unit)	SL5D*	J104-B6	1 : ON
	3	S paper deflecting drive signal (duplexing unit)	SL6D*	J104-B7	1 : ON
	4	Stopper plate solenoid drive signal (duplexing unit)	SL3DU	J104-A4	1 : plate up
	5	Stopper plate solenoid drive signal (duplexing unit)	SL3DD	J104-A5	1 : plate down
	6	Pedestal motor speed switching signal	PEDSP	J109-3	low (automatic by copier type)
	7	Pedestal motor drive signal	PEDMD	J109-1	1 : ON
PD_6 (output)	0	Cassette 3 lifter motor drive signal (cassette pedestal)	C3LMD	J106-1	1 : ON
		Stacking guide plate up solenoid drive signal (duplexing unit)	RDSD	J104-A2	
	1	Cassette 4 lifter motor drive signal	C4LMD	J112-B1	1 : ON
	2	Cassette 5 lifter motor drive signal	C5LMD	J114-B2	1 : ON
	3	—	—	—	—
	4	—	—		
	5	—	—		
	6	—	—		
	7	—	—		
PD_7 (output)	0	Cassette 3 paper width detecting VR signal (cassette pedestal)	C3PPW	J105-6	
	1	Cassette 4 paper width detecting VR signal	C4PPW	J112-B12	
	2	Cassette 5 paper width detecting VR signal	C5PPW	J113-B6	
	3	Cassette 3 liter position signal (cassette pedestal)	C3LTP	J106-7	0 : detected
		Paper jogging guide plate home position signal (duplexing unit)	PGHP	J104-B9	
	4	Cassette 4 lifter position signal	C4LTP	J112-A8	0 : detected
	5	Cassette 5 lifter position signal	CTLTP	J114-A8	0 : detected
	6	—	—		
	7	—	—		

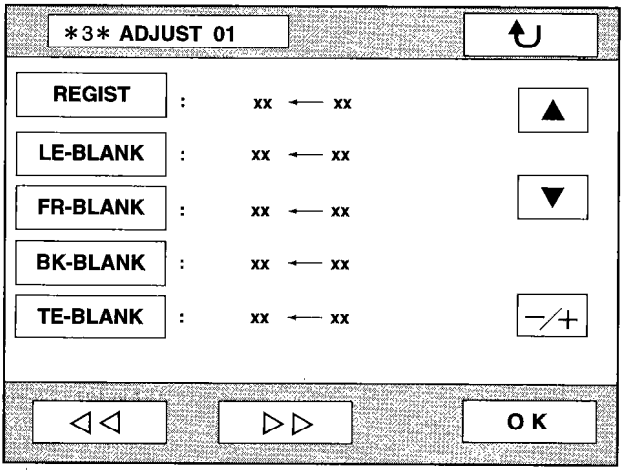
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Address	bit	Description	Signal	Jack	Remarks
PD_A (input)	0	—			
	1	Paper reversal sensor signal (duplexing unit)	PDP9	J115-2	0 : paper present
	2	No. 2 feeding assembly inlet sensor signal (duplexing unit)	PDP8	J103-3	0 : paper present
	3	Vertical path roller 3 paper detection signal	PDP12	J107-9	1 : paper present
	4	Vertical path roller 4 paper detection signal	PDP6	J112-A2	0 : paper present
	5	Vertical path roller 5 paper detection signal	PDP7	J114-A2	0 : paper present
	6	—	—	—	—
	7	Holding tray paper sensor signal (duplexing unit)	TRPD	J104-A10	0 : paper present
PD_B (input)	0	Cassette 3 paper length sensor signal 1 (cassette pedestal)	C3SZ1	J105-2	1 : SW101 ON
	1	Cassette 3 paper length sensor signal 2 (cassette pedestal)	C3SZ2	J105-1	1 : SW102 ON
	2	—	—		
	3	—	—		
	4	Right door open sensor signal	PDOO*	J107-6	0 : open
	5	Left door open sensor signal (duplexing pedestal)	LFDO*	J103-6	0 : open
	6	Duplexing unit insertion detection signal (duplexing unit)	—	J104-A13	0 : connected
	7	—	—		
PD_C (output)	0	Vertical path roller 3 drive signal	CL2D*	J107-4	1 : ON
	1	Vertical path roller 4 drive signal	C4VRD*	J112-B4	1 : ON
	2	Vertical path roller 5 drive signal	C5VRD*	J114B-2	1 : ON
	3	Cassette 3 pick-up signal	CL1D*	J107-2	1 : ON
	4	Cassette 4 pick-up signal	C5PU*	J112-B6	1 : ON
	5	Cassette 5 pick-up signal	C4PU*	J114-B6	1 : ON
	6	—			
	7	Watchdog signal			

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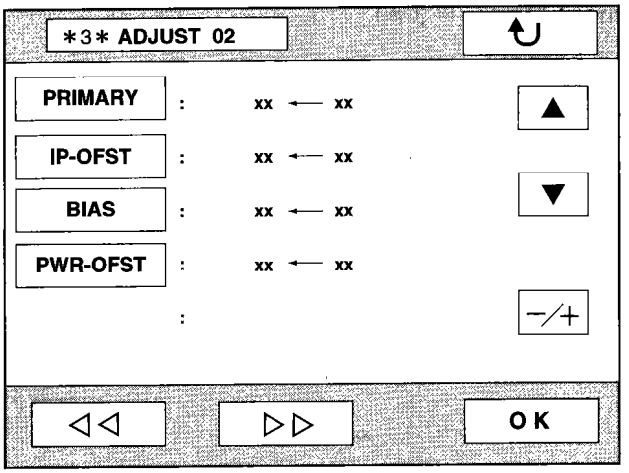
F. Adjustment Mode (* 3 *)

- Using the ▷▷/◁◁ key, select the following screen.
- Using the keypad, enter the appropriate setting; using the Enlarge/Reduce key, increase/decrease the setting.
- Using the ID key, reverse +/–.
- Press the OK key to store the setting.



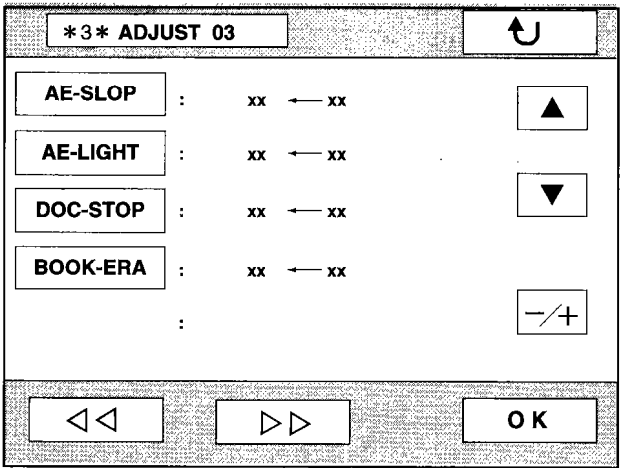
Notation	Description	Settings	Remarks
REGIST	Leading edge margin adjustment (registration)	–127 to 127	
LE_BLANK	Leading edge non-image width adjustment (blank)	–127 to 127	
FR_BLANK	Front margin adjustment	0 to 255	
BK_BLANK	Rear margin adjustment	0 to 255	
TE_BLANK	Trailing edge non-image width adjustment (blank)	–127 to 127	

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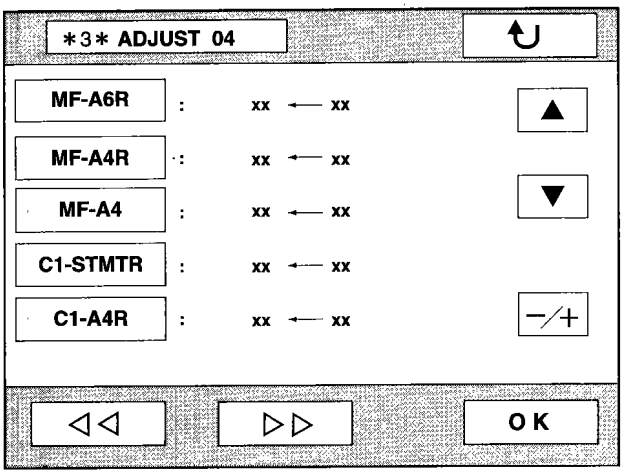
Notation	Description	Settings	Remarks
PRIMARY	Primary application voltage correction value	–127 to 127	Enter the value recorded on the label attached to the drum kit.
BIAS	Developing bias (DC component) adjustment	–25 to 25	
IP_OFST	APVC measurement correction value		Enter the value recorded on the label attached to the drum kit.
PWR_OFST	High-voltage output correction value	–30 to 30	Enter the value recorded on the label attached to the PCB.

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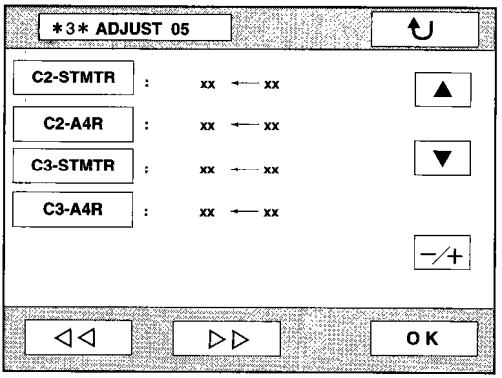
Notation	Description	Settings	Remarks
AE_SLOP	Use it to adjust the DC bias value for newspaper originals in AE mode.	0 to 255	
AE_LIGHT	Use it to adjust the scanning lamp ON voltage in AE mode.	0 to 30	
DOC_STOP	Use it to adjust the original stop position with the RF in use.	−7 to 7	
BOOK_ERA	Use it to adjust the width for book erasing.	15 to 34	

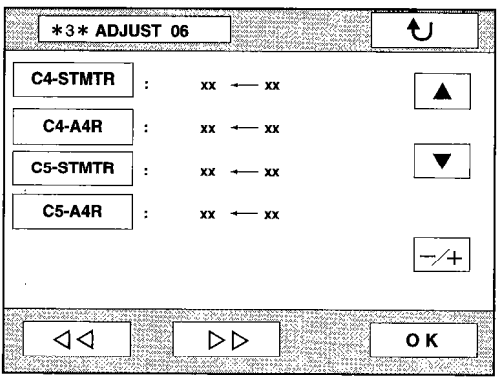
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Notation	Description	Settings	Remarks
MF_A6R	Paper width detection reference point 1 for the multifeeder	0 to 255	Enter a value on the keypad.
MF_A4R	Paper width detection reference point 2	0 to 255	Enter a value on the keypad.
MF_A4	Paper width reference point 3 for the multifeeder	0 to 255	Enter a value on the keypad.
C1_STMTR	Paper width detection reference point 1 for cassette 1	0 to 255	Enter a value on the keypad.
C1_A4R	Paper width detection reference point 2 for cassette 1	0 to 255	Enter a value on the keypad.

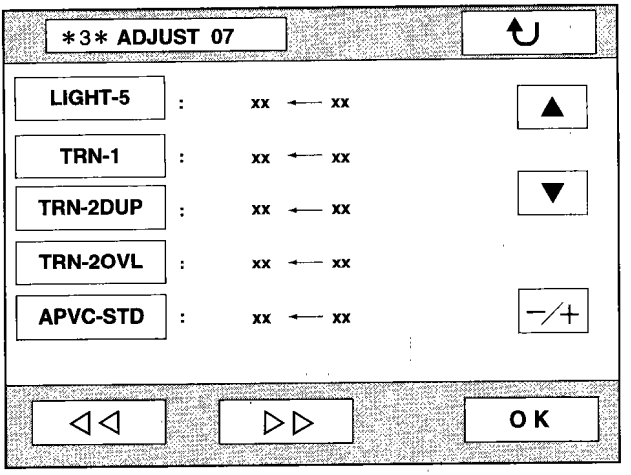
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Notation	Description	Settings	Remarks
C2_STMTR	Paper width detection reference point 1 for cassette 2	0 to 255	Enter a value on the keypad.
C2_A4R	Paper width detection reference point 2 for cassette 2.	0 to 255	Enter a value on the keypad.
C3_STMTR	Paper width detection reference point 1 for cassette 3	0 to 255	Enter a value on the keypad.
C3_A4R	Paper width detection reference point 2 for cassette 3	0 to 255	Enter a value on the keypad.
C4_STMTR	Paper width detection reference point 1 for cassette 4	0 to 255	Enter a value on the keypad.
C4_A4R	Paper width detection reference point 2 for cassette 4	0 to 255	Enter a value on the keypad.
C5_STMTR	Paper width detection reference point 1 for cassette 5	0 to 255	Enter a value on the keypad.
C5_A4R	Paper width reference point 2 for cassette 5	0 to 255	Enter a value on the keypad.

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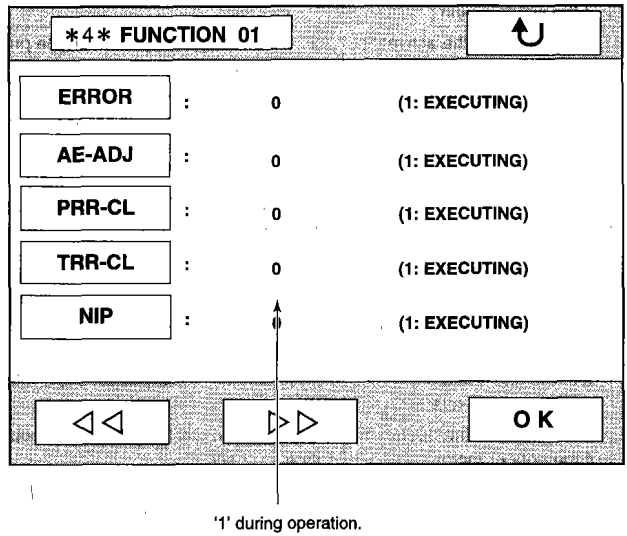
If you have initialized the RAM, be sure to enter the values recorded on the service label using this screen.

Notation	Description	Remarks
LIGHT_5	For factory use.	
TRN_1	For factory use.	
TRN_2DUP	For factory use.	
TRN_2OVL	For factory use.	
APVC_STD	For factory use.	
ATVC_STD	For factory use.	
LMPVTUNE	For factory use.	
BK_BELT	For factory use.	
MF_LNGTH	For factory use.	

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G. Functions Mode (* 4 *)

- Using the [▷▷]/[◁◁] key, select the following screen.
- A press on the OK key starts the selected operation.
- Make sure that the machine is in standby when executing each selected item.

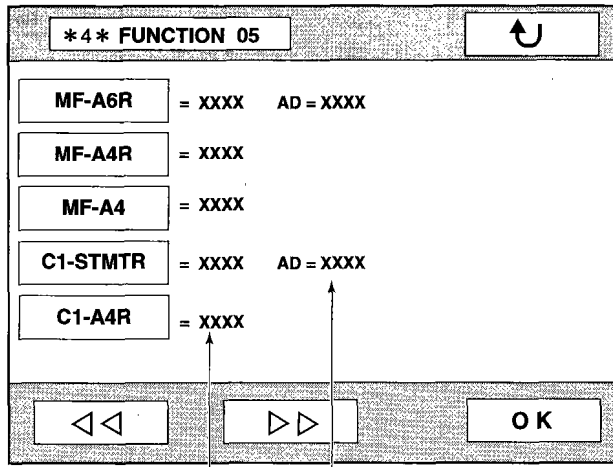


Notation	Description	Operation/remarks
ERROR	Use it to reset 'E000', 'E001', 'E002', or 'E003'.	To reset an E code, press the OK key. (In response, the code will be reset and the power switch will be turned off.)
AE_ADJ	Use it to execute auto AE adjustment.	
PRR_CL	Use it to clean the primary charging roller.	A press on the OK key causes the main motor to rotate, butting the cleaning pad against the primary charging roller to clean the primary charging roller.
TRR_CL	Use it to clean the transfer roller.	When the OK key is pressed, the drum and the transfer roller will be rotated while applying cleaning bias. (about 1 min)
NIP	Use it to adjust the fixing roller nip.	

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Notation	Description	Operation/remarks
DISP_LED	Use it to check the indicators on the control panel display.	A press on the OK key turns off all LEDs on the control panel. (about 3 sec)
LCD_CHK	Use it to check the indicators on the LCD.	A press on the OK key turns on all LCD indicators and then turns them off in 3 sec.
SCANLAMP	Use it to check the activation of the scanning lamp.	A press on the OK key turns on the scanning lamp. (3 sec)
PRE_EXP	Use it to check the activation of the pre-exposure lamp.	A press on the OK key turns on the pre-exposure lamp. (3 sec)
TONER_S	Use it to supply toner at time of installation.	Press the ID key and then the OK key to supply the developing assembly with toner from the hopper. (about 6 min) Thereafter, the operation will stop automatically. This mode ignores the signal from the developing assembly toner sensor. Be sure to turn off the power switch immediately if you executed this item by mistake.
APVC_MR	Use it to measure APVC at time of installation.	A press on the OK key executes multiple rotation, thereby measuring APVC.
BK_ROT	Use it to cause the developing assembly to rotate idly.	A press on the OK key causes idle rotation for about 6 min.
HPPR_MTR	Use it to check the operation of the hopper motor.	A press on the OK key causes the hopper motor to rotate for 3 sec.
BLNKTST	Use it to check the blanking motor.	Place three or more sheets of copy paper on the multifeeder tray, and open the copyboard cover. Press the OK key and then the Copy Start key to move the blanking shutter and make three copies.
RAM_INIT	Use it to initialize the data in the RAM (Q115) on the DC controller PCB.	A press on the OK key starts initialization.

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4 FUNCTION 05
MF-A6R = XXXX AD = XXXX
MF-A4R = XXXX
MF-A4 = XXXX
C1-STMTR = XXXX AD = XXXX
C1-A4R = XXXX
OK
Indicates the adjustment value of the reference point.
A press on the OK key will store the adjustment value.

Notation	Description	Remarks
MF_A6R	Use it to execute automatic adjustment of the paper width detection reference point 1 of the multifeeder.	
MF_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 of the multifeeder.	
MF_A4	Use it to execute automatic execution of the paper with detection reference point 3 for the multifeeder.	
C1_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for the cassette 1.	
C1_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 1.	
C2_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 1.	
C2_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 2.	
C3_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for cassette 3.	
C3_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 3.	

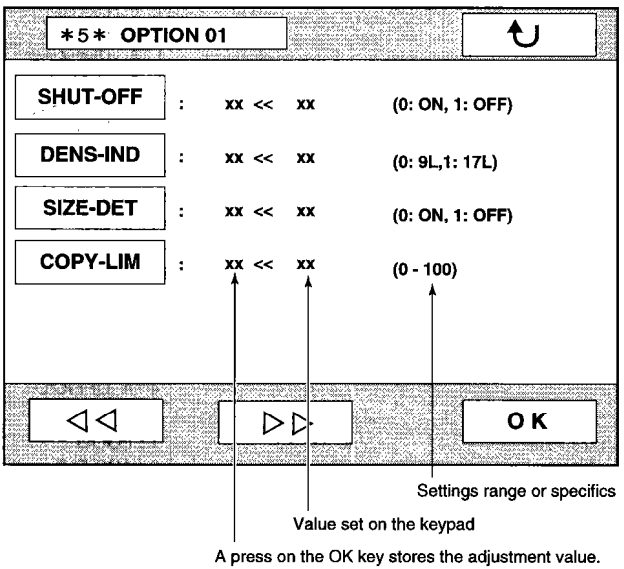
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Notation	Description	Remarks
C4_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for cassette 4.	
C4_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 4.	
C5_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for cassette 5.	
C5_A4R	Use it to execute automatic adjustment of the paper width reference point 2 for cassette 5.	

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H. Options Mode (* 5 *)

- Using the ▷▷/◁◁ key, select the following screen.
- Using the keypad, change the setting.
- Press the OK key to store the value.


5 OPTION 01
SHUT-OFF : xx << xx (0: ON, 1: OFF)
DENS-IND : xx << xx (0: 9L,1: 17L)
SIZE-DET : xx << xx (0: ON, 1: OFF)
COPY-LIM : xx << xx (0 - 100)
◁◁
▷▷
OK
Settings range or specifics
Value set on the keypad
A press on the OK key stores the adjustment value.

Item	Function	Description	Remarks
SHUT_OFF	Use it to turn ON/OFF the auto power-off function.	You may disable the auto power-off function.	0: Enable auto power-off. 1: Disable auto power-off.
DENS_IND	Use it to change the density notation (9/17).	You may select either 9-level or 17-level notation for the LED indication.	0: 9-level 1: 17-level
SIZE_DET	Use it to turn ON/OFF the size detection function.	You may disable the original size detection function.	0: Enable size detection. 1: Disable size detection.
COPY_LIM	Use it to change the upper limit to the copy count.	You may change the upper limit to the copy count between 1 and 100.	1 to 100
U_NOTATI	Use it to change the U-size paper notations.	You may turn ON/OFF the U-size paper size name.	0: U1 through U4. 1: Paper size name.
M_NOTATI	Use it to set paper size selection mode for the multifeeder.	You may enable selection of paper size from all sizes regardless of the position of the side guide plate of the multifeeder assembly.	1: Enable selection.

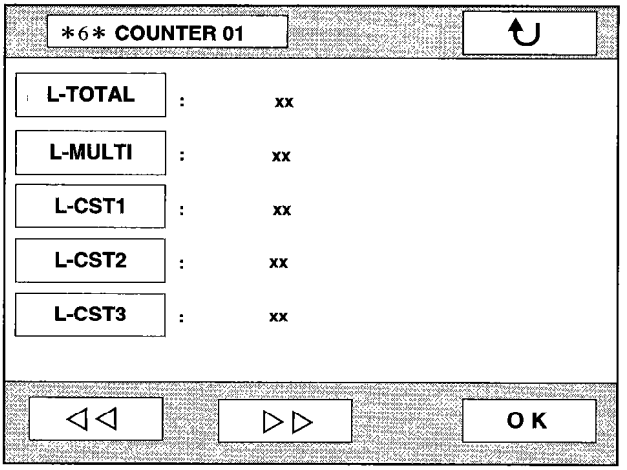
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<table>
<tr><th>Notation</th><th>Function</th><th>Description</th><th>Remarks</th></tr>
<tr><td>SPCL_PPR</td><td>Use it to select special paper mode.</td><td>You may change the control temperature for fixing and the output of the static eliminator.</td><td>
<table>
<tr><th>Setting</th><th>Fixing control temperature</th><th>Static eliminator bias</th></tr>
<tr><td>0</td><td>Normal mode</td><td rowspan="3">Normally</td></tr>
<tr><td>1</td><td>Thick paper mode</td></tr>
<tr><td>2</td><td>Thick paper mode only in multifeeder</td></tr>
<tr><td>3</td><td>Normal mode</td><td rowspan="3">If pick-up is from the multi-feeder, the output of the static eliminator will be used for the output for duplexing.</td></tr>
<tr><td>4</td><td>Thick paper mode</td></tr>
<tr><td>5</td><td>Thick paper mode only in multifeeder</td></tr>
</table>
</td></tr>
<tr><td>CST_GRP1</td><td>Use it to select a U-size paper name (GRP1).</td><td>Select a paper size name (GRP1).</td><td>0 : G_LTR
1 : K_LGL</td></tr>
<tr><td>CST_GRP2</td><td>Use it to select a U-size paper name (GRP1).</td><td>Select a paper size name (GP2).</td><td>0 : FOOLSCAP
1 : OFFICIO
2 : E_OFFICIO
3 : A_LGL
4 : A_OFFICIO</td></tr>
<tr><td>CST_GRP3</td><td>Use it to select a U-size paper name (GRP3).</td><td>Select a paper size name (GRP3).</td><td>0 : G_LGL
1 : FOLIO
2 : AUS FLS</td></tr>
<tr><td>CST_GRP4</td><td>Use it to select a U-size paper name (GRP4).</td><td>Select a paper size name (GRP4).</td><td>0 : LTR
1 : A_LTR</td></tr>
<tr><td>WEB</td><td>Use it to set mode for web feeding.</td><td>You may double the number of times the web solenoid turns on.</td><td>0 : standard
1 : double</td></tr>
</table>

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I. Counter Mode (* 6 *)

- Using the [▷▷]/[◁◁] key, select the following screen.
- If you press the Clear key while holding down the service mode switch (Figure 3-801) with the screen shown, the applicable counter will be cleared.



Notation	Description	Remarks
L_TOTAL	Large-size total copy count	Counts at time of delivery.
L_MULTI	Large-size multifeeder pick-up copy count	
L_CST1	Large-size cassette 1 pick-up copy count	
L_CST2	Large-size cassette 2 pick-up copy count	
L_CST3	Large-size cassette 3 pick-up copy count	
L_CST4	Large-size cassette 4 pick-up copy count	
L_CST5	Large-size cassette 5 pick-up copy count	
L_OVERLAY	Large-size overlay 2nd side pick-up copy count	
L_2_SIDE	Large-size two-sided 2nd size pick-up copy count	
L_DF	Large-size original feed count	Counts at time of original pick-up.
S_TOTAL	Small-size total copy count	Counts at time of delivery.
S_MULTI	Small-size multifeeder pick-up copy count	
S_CST1	Small-size cassette 1 pick-up copy count	
S_CST2	Small-size cassette 2 pick-up copy count	
S_CST3	Small-size cassette 3 pick-up copy count	
S_CST4	Small-size cassette 4 pick-up copy count	
S_CST5	Small-size cassette 5 pick-up copy count	
S_OVERLAY	Small-size overlay 2nd side pick-up copy count	
S_2_SIDE	Small-size two-sided 2nd side pick-up copy count	

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Notation	Description	Remarks
S_DF	Small-size original feed count	Counts at time of original pick-up.
SERVICE1	Service counter 1	Counts at time of pick-up.
SERVICE2	Service counter 2	
WEB	Web solenoid activation count*	Counts at time of activation (SL3).

*The "Add Web" message will be indicated on the control panel upon the 250,000th activation.

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IX. SELF DIAGNOSIS

The microprocessor on the NP6035's DC controller is equipped with a function that checks the condition of the machine (particularly, its sensors). The microprocessor runs a check at such times as programmed and indicates an error code or executes error auto power-off or error shut-off upon detection of an error.

A. Copier

Code	Cause	Description
E000	• Thermistor (TH1; off contact, poor contact, open circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	The temperature of the upper fixing assembly does not reach 55°C within 27 sec after power-on. (Notes 1, 2) When an error associated with 'E000' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E001	• Thermistor (TH1; short circuit) • SSR (faulty) • DC controller PCB (faulty)	The temperature of the upper fixing assembly exceeds 220°C. (Notes 1, 2) When an error associated with 'E001' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E002	• Thermistor (TH1; poor contact, open circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	• The temperature does not reach 75°C within 35 sec after reaching 40°C. • The temperature does not reach 100°C within 25 sec after reaching 75°C. • The temperature does not reach 120°C within 20 sec after reaching 100°C. • The temperature does not reach 140°C within 20 sec after reaching 120°C. • The temperature does not reach 160°C within 20 sec after reaching 140°C. • The temperature does not reach 170°C within 15 sec after reaching 160°C. • The temperature does not reach 180°C within 15 sec after reaching 170°C. • The temperature does not reach 185°C within 7 sec after reaching 180°C. • The temperature does not reach 185°C within 7 sec after reaching 180°C. • The temperature does not reach 190°C within 7 sec after reaching 185°C. (Notes 1, 2) When an error associated with 'E002' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.

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Code	Cause	Description
E003	• Thermistor (TH1; poor contact, open circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	• The temperature drops to 100°C or less after reaching a specific temperature. (Notes 1, 2) When an error associated with 'E003' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E004	• SSR (short circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit)	The SSR has turned while the heater (H1, H2) is off when the power switch is turned on. When an error associated with 'E004' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E010	• Main motor (faulty) • Main motor driver PCB (faulty) • DC controller PCB (faulty)	After the main motor drive signal has been generated, two or more clock pulses are not input within 1 sec.
E030	• Counter (open circuit) • DC controller PCB (faulty)	A check is made before the counter is turned on and off. (When the counter is turned on, normal if the counter drive signal is '0'; when the counter is turned off, normal if the counter drive signal is '1'.)
E064	• Composite power supply PCB (faulty) • DC controller PCB (faulty) • Wiring (short circuit)	There is an appreciable difference between the output from the microprocessor (Q401) on the composite power supply PCB and the return signal level.
E065	• Composite power supply PCB (faulty) • DC controller PCB (faulty) • Wiring (short circuit)	The microprocessor (Q401) on the composite power supply PCB has detected high-voltage leakage.
E202 (Note 3)	• Scanner home positions sensor (PS1; faulty) • Scanner motor (M2; faulty) • Motor driver PCB (faulty)	• The scanner home position signal (SCHP) does not go '1' within 10 sec after the power switch or the door switch has been turned on. • The scanner took 10 sec or more to make a round trip (SCFW + SCRV).
E203	• Scanner home position sensor (PS1; faulty) • DC controller PCB (faulty)	The scanner home position signal (SCHP) has occurred for 2 pulses or more within 0.5 sec when the scanner motor turned on.
E204 (Note 3)	• Scanner home position sensor (PS1; faulty) • Motor driver PCB (faulty)	The home position signal does not turn off after the scanner has started to move forward.
E210	• Lens X home position sensor (PS16; faulty) • Lens X drive motor (M6; faulty) • DC control PCB (faulty)	• The lens home position signal (LXHP) is not generated within 9 sec after the lens X motor starts to rotate when the power switch or the door switch has been turned on. • The lens home position signal (LXHP) does to turn off within 1 sec after it has been generated.

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Code	Cause	DescriptionCause
E212	• Lens Y home position sensor (PS17; faulty) • Lens Y drive motor (M7; faulty) • DC controller PCB (faulty)	• The lens home position signal (LYHP) is not generated within 10 sec after the lens Y motor starts to rotate when the power switch or the door switch has been turned on. • The lens home position signal (LYHP) does not turn off within 1 after it has been generated.
E220	• Scanning lamp • Composite power supply PCB • DC controller PCB	The scanning lamp does not turn on within 0.5 sec after the DC controller PCB has generated the scanning lamp ON signal. When an error associated with 'E220' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E224	• Blanking shutter motor (M8, M9; faulty) • Blanking shutter home position sensor (PS12, PS13; faulty)	• The blanking shutter home position signal (BLFHP, BLBHP) is not generated within 7 sec after the power switch has been turned on. • The blanking shutter home position signal (BLFHP, BLBHP) does not turn off within 1 sec after it has been generated.
E240	• DC controller PCB (faulty)	An error has occurred in the communication between the microprocessor master (IC110) and the microprocessor slave (IC112).
E244	• DC controller PCB (faulty) • Composite power supply PCB (faulty) • Harness (between composite power supply PCB and DC controller PCB; faulty)	The communication between the microprocessor (Q401) on the composite power supply PCB and the DC controller has been disrupted for 5 sec or more.
E710	• DC control PCB (faulty)	IC108 on the DC controller PCB cannot be initialized at time of power-on.
E711	• DC controller PCB (faulty)	IC108 on the C controller PCB has gone out of order at time of power-on.
E712	Feeder • RF control PCB (faulty) • Connector (poor contact) • Options power supply PC (faulty)	The communication IC on the RF controller PCB has gone out of order.

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Code	Cause	DescriptionCause
E716	Pedestal • Pedestal controller PCB (faulty) • Connector (poor connection) • 24V power supply PCB	The communication IC on the pedestal controller PCB has gone out of order. A communication error has occurred.
E800	• Auto power-off function (open circuit) • DC controller	An open circuit in the auto power off circuit has been detected.

Note:

1. When the self diagnosis mechanism has detected an error, you may reset the machine by turning off its switch once.
   This, however, does not apply to 'E000', 'E001', 'E002', and 'E003'. To reset these error codes, select 'ERROR' in service mode (*4*), and press the OK key. This arrangement is adopted to prevent the user from casually resetting the machine when the cause of the error is an open circuit in the thermistor, thereby protecting the rollers inside the fixing assembly against heat damage.
2. If 'E00', 'E001', 'E002', or 'E003' is detected, the machine forces off the power switch in about 20 sec.
3. In the case of 'E202' and 'E204', you may obtain details under 'ERR' in service mode (*1*).

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B. Copier Error Auto Power-Off

In the NP6035, auto power-off turns on as described:

Cause	Timing
E000, E001, E002, E003, E004, E220 (E indication on control panel)	2 sec after detecting E000, E001, E002, E003, E004, or E220.
E0000, E0001, E002, E003 not reset (E indication given)	about 20 sec after power-on.
Scanning lamp (no E indication)	• When the scanning lamp has remained on for 21 sec.
Thermal fuse (FU1; no E indication)	• About 21 sec after the thermal fuse (FU1) blows. • About 21 sec after power-on.

C. Copier Error Auto Shut-Off

Cause	Timing
E244 (E code on control panel)	5 sec after detection of E244

Reference:

- Auto Power-Off
  'auto power-off' must be selected in user mode; the mode tuns off the power switch.
- Error Auto Power-Off
  The protection mechanism (self diagnose, etc.) turns on to turn off the power switch.
- Error Auto Shut-Off
  The protection mechanism (self diagnosis, etc.) turns on to turn off all outputs. The power switch will not turn off, but the indications on the control panel turn off.

In the NP6035, error auto shut-off turns on as described.

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D. Pedestal Self Diagnosis

Code	Cause	Timing
E901	• Pedestal motor (M1; faulty) • Pedestal controller PCB (faulty)	The motor clock signal is not input within 1 sec after pedestal motor drive signal has been generated.
E902	• Paper jogging guide plate home position sensor (PS5; faulty) • Paper jogging guide plate drive motor (faulty) • Pedestal controller PCB (faulty)	• If the home position sensor (PS5) is off, The home position sensor signal (PGHP) is not generated when the paper jogging guide plate drive motor has been driven in the direction of home position for 1200 pulses. • If the home position sensor (PS5) is on, The home position sensor signal (PGHP) does not turn off when the paper jogging guide plate drive motor has been driven in the direction opposite the home position for 100 pulses.

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E. RF/ADF Self Diagnosis

Code	Cause	Timing
E400	• Communication (error; data, with copier)	The communication with the copier has been disrupted for 5 sec or more. (Checks are made at all times.)
E401	• Pick-up motor (fails to rotate) • Pick-up roller sensor (faulty)	• A flag is attached to the spindle of the pick-up motor, and the rotation of the pick-up motor is monitored in reference to the flag blocking the pick-up roll sensor. PS3 does not turn on/off twice or more within 1 sec.
E402	• Belt motor (fails to rotate) • Belt motor clock sensor (faulty)	The number of belt clock pulses within 200 msec is below a specific value.
E403	• Feeding motor (fails to rotate) • Feeding motor clock sensor (faulty)	The number of feeding motor clock pulses within 200 msec is below a specific value.
E404	• Delivery motor (fails to rotate) • Delivery motor clock sensor (faulty)	The number of delivery motor clock pulses within 200 msec is blow a specific value.
E411	• Original detection (faulty) • Registration sensor (faulty) • Original end sensor (faulty)	The sensor output is 2.3 V or more in the absence of paper.

Note:

When the self diagnosis mechanism has detected an error, you can reset the machine by turning off the copier's power switch once.
You may continue to make copies even when the RF is out of order; lift the RF, and place the original on the copyboard.

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F. Sorter Self Diagnosis

Code	Cause	Timing
E500	• CPU or communication IC on sorter controller (faulty)	An error has occurred in the communication between the sorter and the copier.
E510	• Feeder motor (fails to rotate)	The clock signal from the motor remains off for 250 msec.
E530	• Stapler guide bar swing motor (fails to rotate)	The home position sensor does not turn off when 2560 pulses of the motor drive signal have been generated.
E531	• Staler unit swing motor (fails to rotate)	• The stapler unit swing sensor does not turn off within 500 msec after the motor drive signal has been generated. • The stapler unit swing sensor does not turn on within 1000 msec after it has turned off.
E540	• Bin shift motor (fails to rotate)	• The lead cam home position sensor does not turn off within 2000 msec after the motor drive signal has been generated. • The lead cam home position sensor does not turn on within 2000 msec after it has turned off.
E541	• Bin motor (faulty) • Lead cam drive gear (wrong installation)	The lead cam position sensor does not turn on within 1.0 sec after it has turned off.

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■ Resetting the Errors

1 If the copier is in the middle of operation,

① It turns on the "Jam" message.

② When the jam has been removed, it indicates the "Turn On the Power" message.

③ When the power has been turned off and then on again, it runs a self check. It is reset if the result is good. If the result is not good, it enters down state*, indicating 'E5XX; on the control panel.

2 If the copier is not operating,

① It indicates the "Turn On the Power" message.

② When the power has been turned off and then on again, it runs a self check. It is reset if the result is good. If the result is not good, it enters down state*, indicating 'E5XX; on the control panel.

• Down State

① It indicates 'E5XX'.

② When the sorter has been detached**, it is ready for operation unless a mode requiring the sorter is selected.

③ If a mode requiring the sorter has been selected, it will indicate the "Mode Not Available" message.

■ The machine will be reset if the result of a self check after the power has been turned off and then on again is good even in down state. (This is with the sorter connected to the copier.)

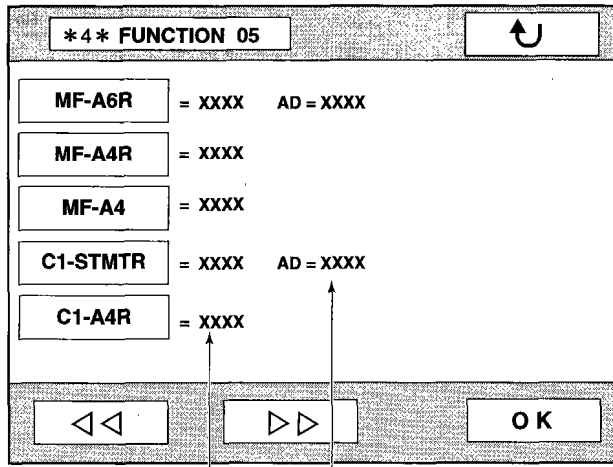
* State in which an error code is indicated.

** Turn off the joint sensor. The connector may remain connected.

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Notation	Description	Operation/remarks
DISP_LED	Use it to check the indicators on the control panel display.	A press on the OK key turns off all LEDs on the control panel. (about 3 sec)
LCD_CHK	Use it to check the indicators on the LCD.	A press on the OK key turns on all LCD indicators and then turns them off in 3 sec.
SCANLAMP	Use it to check the activation of the scanning lamp.	A press on the OK key turns on the scanning lamp. (3 sec)
PRE_EXP	Use it to check the activation of the pre-exposure lamp.	A press on the OK key turns on the pre-exposure lamp. (3 sec)
TONER_S	Use it to supply toner at time of installation.	Press the ID key and then the OK key to supply the developing assembly with toner from the hopper. (about 6 min) Thereafter, the operation will stop automatically. This mode ignores the signal from the developing assembly toner sensor. Be sure to turn off the power switch immediately if you executed this item by mistake.
APVC_MR	Use it to measure APVC at time of installation.	A press on the OK key executes multiple rotation, thereby measuring APVC.
BK_ROT	Use it to cause the developing assembly to rotate idly.	A press on the OK key causes idle rotation for about 6 min.
HPPR_MTR	Use it to check the operation of the hopper motor.	A press on the OK key causes the hopper motor to rotate for 3 sec.
BLNKTST	Use it to check the blanking motor.	Place three or more sheets of copy paper on the multifeeder tray, and open the copyboard cover. Press the OK key and then the Copy Start key to move the blanking shutter and make three copies.
RAM_INIT	Use it to initialize the data in the RAM (Q115) on the DC controller PCB.	A press on the OK key starts initialization.

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4 FUNCTION 05
MF-A6R = XXXX AD = XXXX
MF-A4R = XXXX
MF-A4 = XXXX
C1-STMTR = XXXX AD = XXXX
C1-A4R = XXXX
OK
Indicates the adjustment value of the reference point.
A press on the OK key will store the adjustment value.

Notation	Description	Remarks
MF_A6R	Use it to execute automatic adjustment of the paper width detection reference point 1 of the multifeeder.	
MF_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 of the multifeeder.	
MF_A4	Use it to execute automatic execution of the paper with detection reference point 3 for the multifeeder.	
C1_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for the cassette 1.	
C1_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 1.	
C2_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 1.	
C2_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 2.	
C3_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for cassette 3.	
C3_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 3.	

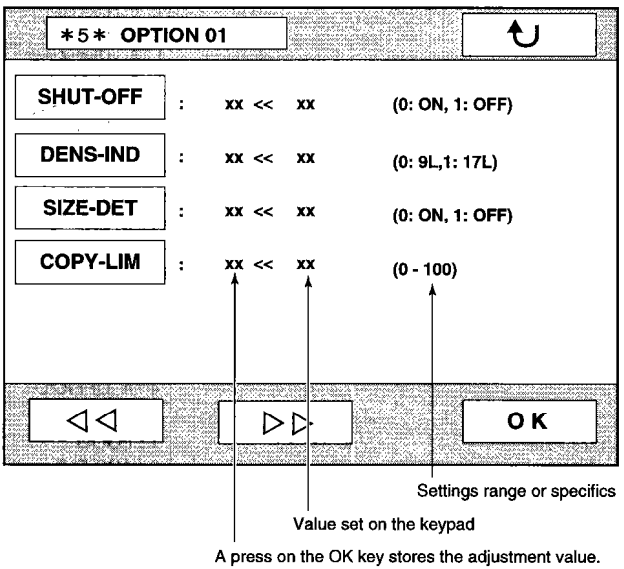
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Notation	Description	Remarks
C4_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for cassette 4.	
C4_A4R	Use it to execute automatic adjustment of the paper width detection reference point 2 for cassette 4.	
C5_STMTR	Use it to execute automatic adjustment of the paper width detection reference point 1 for cassette 5.	
C5_A4R	Use it to execute automatic adjustment of the paper width reference point 2 for cassette 5.	

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H. Options Mode (* 5 *)

- Using the ▷▷/◁◁ key, select the following screen.
- Using the keypad, change the setting.
- Press the OK key to store the value.


5 OPTION 01
SHUT-OFF : xx << xx (0: ON, 1: OFF)
DENS-IND : xx << xx (0: 9L,1: 17L)
SIZE-DET : xx << xx (0: ON, 1: OFF)
COPY-LIM : xx << xx (0 - 100)
◁◁
▷▷
OK
Settings range or specifics
Value set on the keypad
A press on the OK key stores the adjustment value.

Item	Function	Description	Remarks
SHUT_OFF	Use it to turn ON/OFF the auto power-off function.	You may disable the auto power-off function.	0: Enable auto power-off. 1: Disable auto power-off.
DENS_IND	Use it to change the density notation (9/17).	You may select either 9-level or 17-level notation for the LED indication.	0: 9-level 1: 17-level
SIZE_DET	Use it to turn ON/OFF the size detection function.	You may disable the original size detection function.	0: Enable size detection. 1: Disable size detection.
COPY_LIM	Use it to change the upper limit to the copy count.	You may change the upper limit to the copy count between 1 and 100.	1 to 100
U_NOTATI	Use it to change the U-size paper notations.	You may turn ON/OFF the U-size paper size name.	0: U1 through U4. 1: Paper size name.
M_NOTATI	Use it to set paper size selection mode for the multifeeder.	You may enable selection of paper size from all sizes regardless of the position of the side guide plate of the multifeeder assembly.	1: Enable selection.

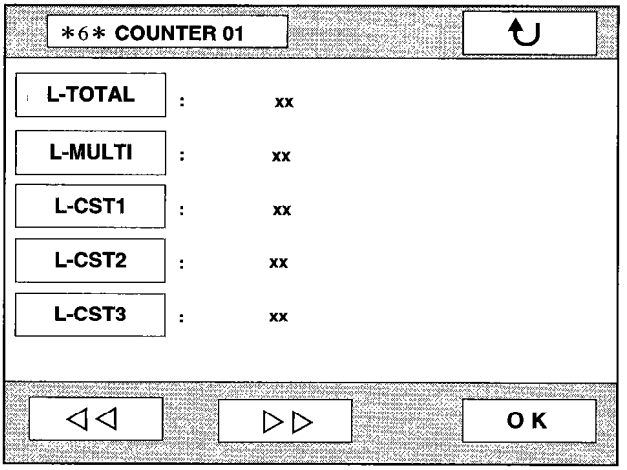
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<table>
<tr><th>Notation</th><th>Function</th><th>Description</th><th>Remarks</th></tr>
<tr><td>SPCL_PPR</td><td>Use it to select special paper mode.</td><td>You may change the control temperature for fixing and the output of the static eliminator.</td><td>
<table>
<tr><th>Setting</th><th>Fixing control temperature</th><th>Static eliminator bias</th></tr>
<tr><td>0</td><td>Normal mode</td><td rowspan="3">Normally</td></tr>
<tr><td>1</td><td>Thick paper mode</td></tr>
<tr><td>2</td><td>Thick paper mode only in multifeeder</td></tr>
<tr><td>3</td><td>Normal mode</td><td rowspan="3">If pick-up is from the multi-feeder, the output of the static eliminator will be used for the output for duplexing.</td></tr>
<tr><td>4</td><td>Thick paper mode</td></tr>
<tr><td>5</td><td>Thick paper mode only in multifeeder</td></tr>
</table>
</td></tr>
<tr><td>CST_GRP1</td><td>Use it to select a U-size paper name (GRP1).</td><td>Select a paper size name (GRP1).</td><td>0 : G_LTR
1 : K_LGL</td></tr>
<tr><td>CST_GRP2</td><td>Use it to select a U-size paper name (GRP1).</td><td>Select a paper size name (GP2).</td><td>0 : FOOLSCAP
1 : OFFICIO
2 : E_OFFICIO
3 : A_LGL
4 : A_OFFICIO</td></tr>
<tr><td>CST_GRP3</td><td>Use it to select a U-size paper name (GRP3).</td><td>Select a paper size name (GRP3).</td><td>0 : G_LGL
1 : FOLIO
2 : AUS FLS</td></tr>
<tr><td>CST_GRP4</td><td>Use it to select a U-size paper name (GRP4).</td><td>Select a paper size name (GRP4).</td><td>0 : LTR
1 : A_LTR</td></tr>
<tr><td>WEB</td><td>Use it to set mode for web feeding.</td><td>You may double the number of times the web solenoid turns on.</td><td>0 : standard
1 : double</td></tr>
</table>

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I. Counter Mode (* 6 *)

- Using the [▷▷]/[◁◁] key, select the following screen.
- If you press the Clear key while holding down the service mode switch (Figure 3-801) with the screen shown, the applicable counter will be cleared.



Notation	Description	Remarks
L_TOTAL	Large-size total copy count	Counts at time of delivery.
L_MULTI	Large-size multifeeder pick-up copy count	
L_CST1	Large-size cassette 1 pick-up copy count	
L_CST2	Large-size cassette 2 pick-up copy count	
L_CST3	Large-size cassette 3 pick-up copy count	
L_CST4	Large-size cassette 4 pick-up copy count	
L_CST5	Large-size cassette 5 pick-up copy count	
L_OVERLAY	Large-size overlay 2nd side pick-up copy count	
L_2_SIDE	Large-size two-sided 2nd size pick-up copy count	
L_DF	Large-size original feed count	Counts at time of original pick-up.
S_TOTAL	Small-size total copy count	Counts at time of delivery.
S_MULTI	Small-size multifeeder pick-up copy count	
S_CST1	Small-size cassette 1 pick-up copy count	
S_CST2	Small-size cassette 2 pick-up copy count	
S_CST3	Small-size cassette 3 pick-up copy count	
S_CST4	Small-size cassette 4 pick-up copy count	
S_CST5	Small-size cassette 5 pick-up copy count	
S_OVERLAY	Small-size overlay 2nd side pick-up copy count	
S_2_SIDE	Small-size two-sided 2nd side pick-up copy count	

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Notation	Description	Remarks
S_DF	Small-size original feed count	Counts at time of original pick-up.
SERVICE1	Service counter 1	Counts at time of pick-up.
SERVICE2	Service counter 2	
WEB	Web solenoid activation count*	Counts at time of activation (SL3).

*The "Add Web" message will be indicated on the control panel upon the 250,000th activation.

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IX. SELF DIAGNOSIS

The microprocessor on the NP6035's DC controller is equipped with a function that checks the condition of the machine (particularly, its sensors). The microprocessor runs a check at such times as programmed and indicates an error code or executes error auto power-off or error shut-off upon detection of an error.

A. Copier

Code	Cause	Description
E000	• Thermistor (TH1; off contact, poor contact, open circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	The temperature of the upper fixing assembly does not reach 55°C within 27 sec after power-on. (Notes 1, 2) When an error associated with 'E000' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E001	• Thermistor (TH1; short circuit) • SSR (faulty) • DC controller PCB (faulty)	The temperature of the upper fixing assembly exceeds 220°C. (Notes 1, 2) When an error associated with 'E001' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E002	• Thermistor (TH1; poor contact, open circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	• The temperature does not reach 75°C within 35 sec after reaching 40°C. • The temperature does not reach 100°C within 25 sec after reaching 75°C. • The temperature does not reach 120°C within 20 sec after reaching 100°C. • The temperature does not reach 140°C within 20 sec after reaching 120°C. • The temperature does not reach 160°C within 20 sec after reaching 140°C. • The temperature does not reach 170°C within 15 sec after reaching 160°C. • The temperature does not reach 180°C within 15 sec after reaching 170°C. • The temperature does not reach 185°C within 7 sec after reaching 180°C. • The temperature does not reach 185°C within 7 sec after reaching 180°C. • The temperature does not reach 190°C within 7 sec after reaching 185°C. (Notes 1, 2) When an error associated with 'E002' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.

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Code	Cause	Description
E003	• Thermistor (TH1; poor contact, open circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit) • SSR (faulty) • DC controller PCB (faulty)	• The temperature drops to 100°C or less after reaching a specific temperature. (Notes 1, 2) When an error associated with 'E003' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E004	• SSR (short circuit) • Heater (H1, H2; open circuit) • Thermal switch (TS1; open circuit)	The SSR has turned while the heater (H1, H2) is off when the power switch is turned on. When an error associated with 'E004' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E010	• Main motor (faulty) • Main motor driver PCB (faulty) • DC controller PCB (faulty)	After the main motor drive signal has been generated, two or more clock pulses are not input within 1 sec.
E030	• Counter (open circuit) • DC controller PCB (faulty)	A check is made before the counter is turned on and off. (When the counter is turned on, normal if the counter drive signal is '0'; when the counter is turned off, normal if the counter drive signal is '1'.)
E064	• Composite power supply PCB (faulty) • DC controller PCB (faulty) • Wiring (short circuit)	There is an appreciable difference between the output from the microprocessor (Q401) on the composite power supply PCB and the return signal level.
E065	• Composite power supply PCB (faulty) • DC controller PCB (faulty) • Wiring (short circuit)	The microprocessor (Q401) on the composite power supply PCB has detected high-voltage leakage.
E202 (Note 3)	• Scanner home positions sensor (PS1; faulty) • Scanner motor (M2; faulty) • Motor driver PCB (faulty)	• The scanner home position signal (SCHP) does not go '1' within 10 sec after the power switch or the door switch has been turned on. • The scanner took 10 sec or more to make a round trip (SCFW + SCRV).
E203	• Scanner home position sensor (PS1; faulty) • DC controller PCB (faulty)	The scanner home position signal (SCHP) has occurred for 2 pulses or more within 0.5 sec when the scanner motor turned on.
E204 (Note 3)	• Scanner home position sensor (PS1; faulty) • Motor driver PCB (faulty)	The home position signal does not turn off after the scanner has started to move forward.
E210	• Lens X home position sensor (PS16; faulty) • Lens X drive motor (M6; faulty) • DC control PCB (faulty)	• The lens home position signal (LXHP) is not generated within 9 sec after the lens X motor starts to rotate when the power switch or the door switch has been turned on. • The lens home position signal (LXHP) does to turn off within 1 sec after it has been generated.

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Code	Cause	DescriptionCause
E212	• Lens Y home position sensor (PS17; faulty) • Lens Y drive motor (M7; faulty) • DC controller PCB (faulty)	• The lens home position signal (LYHP) is not generated within 10 sec after the lens Y motor starts to rotate when the power switch or the door switch has been turned on. • The lens home position signal (LYHP) does not turn off within 1 after it has been generated.
E220	• Scanning lamp • Composite power supply PCB • DC controller PCB	The scanning lamp does not turn on within 0.5 sec after the DC controller PCB has generated the scanning lamp ON signal. When an error associated with 'E220' is detected, the copier turns off the power switch in 2 sec and then turns off all power supplies.
E224	• Blanking shutter motor (M8, M9; faulty) • Blanking shutter home position sensor (PS12, PS13; faulty)	• The blanking shutter home position signal (BLFHP, BLBHP) is not generated within 7 sec after the power switch has been turned on. • The blanking shutter home position signal (BLFHP, BLBHP) does not turn off within 1 sec after it has been generated.
E240	• DC controller PCB (faulty)	An error has occurred in the communication between the microprocessor master (IC110) and the microprocessor slave (IC112).
E244	• DC controller PCB (faulty) • Composite power supply PCB (faulty) • Harness (between composite power supply PCB and DC controller PCB; faulty)	The communication between the microprocessor (Q401) on the composite power supply PCB and the DC controller has been disrupted for 5 sec or more.
E710	• DC control PCB (faulty)	IC108 on the DC controller PCB cannot be initialized at time of power-on.
E711	• DC controller PCB (faulty)	IC108 on the C controller PCB has gone out of order at time of power-on.
E712	Feeder • RF control PCB (faulty) • Connector (poor contact) • Options power supply PC (faulty)	The communication IC on the RF controller PCB has gone out of order.

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Code	Cause	DescriptionCause
E716	Pedestal • Pedestal controller PCB (faulty) • Connector (poor connection) • 24V power supply PCB	The communication IC on the pedestal controller PCB has gone out of order. A communication error has occurred.
E800	• Auto power-off function (open circuit) • DC controller	An open circuit in the auto power off circuit has been detected.

Note:

1. When the self diagnosis mechanism has detected an error, you may reset the machine by turning off its switch once.
   This, however, does not apply to 'E000', 'E001', 'E002', and 'E003'. To reset these error codes, select 'ERROR' in service mode (*4*), and press the OK key. This arrangement is adopted to prevent the user from casually resetting the machine when the cause of the error is an open circuit in the thermistor, thereby protecting the rollers inside the fixing assembly against heat damage.
2. If 'E00', 'E001', 'E002', or 'E003' is detected, the machine forces off the power switch in about 20 sec.
3. In the case of 'E202' and 'E204', you may obtain details under 'ERR' in service mode (*1*).

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B. Copier Error Auto Power-Off

In the NP6035, auto power-off turns on as described:

Cause	Timing
E000, E001, E002, E003, E004, E220 (E indication on control panel)	2 sec after detecting E000, E001, E002, E003, E004, or E220.
E0000, E0001, E002, E003 not reset (E indication given)	about 20 sec after power-on.
Scanning lamp (no E indication)	• When the scanning lamp has remained on for 21 sec.
Thermal fuse (FU1; no E indication)	• About 21 sec after the thermal fuse (FU1) blows. • About 21 sec after power-on.

C. Copier Error Auto Shut-Off

Cause	Timing
E244 (E code on control panel)	5 sec after detection of E244

Reference:

- Auto Power-Off
  'auto power-off' must be selected in user mode; the mode tuns off the power switch.
- Error Auto Power-Off
  The protection mechanism (self diagnose, etc.) turns on to turn off the power switch.
- Error Auto Shut-Off
  The protection mechanism (self diagnosis, etc.) turns on to turn off all outputs. The power switch will not turn off, but the indications on the control panel turn off.

In the NP6035, error auto shut-off turns on as described.

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D. Pedestal Self Diagnosis

Code	Cause	Timing
E901	• Pedestal motor (M1; faulty) • Pedestal controller PCB (faulty)	The motor clock signal is not input within 1 sec after pedestal motor drive signal has been generated.
E902	• Paper jogging guide plate home position sensor (PS5; faulty) • Paper jogging guide plate drive motor (faulty) • Pedestal controller PCB (faulty)	• If the home position sensor (PS5) is off, The home position sensor signal (PGHP) is not generated when the paper jogging guide plate drive motor has been driven in the direction of home position for 1200 pulses. • If the home position sensor (PS5) is on, The home position sensor signal (PGHP) does not turn off when the paper jogging guide plate drive motor has been driven in the direction opposite the home position for 100 pulses.

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E. RF/ADF Self Diagnosis

Code	Cause	Timing
E400	• Communication (error; data, with copier)	The communication with the copier has been disrupted for 5 sec or more. (Checks are made at all times.)
E401	• Pick-up motor (fails to rotate) • Pick-up roller sensor (faulty)	• A flag is attached to the spindle of the pick-up motor, and the rotation of the pick-up motor is monitored in reference to the flag blocking the pick-up roll sensor. PS3 does not turn on/off twice or more within 1 sec.
E402	• Belt motor (fails to rotate) • Belt motor clock sensor (faulty)	The number of belt clock pulses within 200 msec is below a specific value.
E403	• Feeding motor (fails to rotate) • Feeding motor clock sensor (faulty)	The number of feeding motor clock pulses within 200 msec is below a specific value.
E404	• Delivery motor (fails to rotate) • Delivery motor clock sensor (faulty)	The number of delivery motor clock pulses within 200 msec is blow a specific value.
E411	• Original detection (faulty) • Registration sensor (faulty) • Original end sensor (faulty)	The sensor output is 2.3 V or more in the absence of paper.

Note:

When the self diagnosis mechanism has detected an error, you can reset the machine by turning off the copier's power switch once.
You may continue to make copies even when the RF is out of order; lift the RF, and place the original on the copyboard.

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F. Sorter Self Diagnosis

Code	Cause	Timing
E500	• CPU or communication IC on sorter controller (faulty)	An error has occurred in the communication between the sorter and the copier.
E510	• Feeder motor (fails to rotate)	The clock signal from the motor remains off for 250 msec.
E530	• Stapler guide bar swing motor (fails to rotate)	The home position sensor does not turn off when 2560 pulses of the motor drive signal have been generated.
E531	• Staler unit swing motor (fails to rotate)	• The stapler unit swing sensor does not turn off within 500 msec after the motor drive signal has been generated. • The stapler unit swing sensor does not turn on within 1000 msec after it has turned off.
E540	• Bin shift motor (fails to rotate)	• The lead cam home position sensor does not turn off within 2000 msec after the motor drive signal has been generated. • The lead cam home position sensor does not turn on within 2000 msec after it has turned off.
E541	• Bin motor (faulty) • Lead cam drive gear (wrong installation)	The lead cam position sensor does not turn on within 1.0 sec after it has turned off.

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■ Resetting the Errors

1 If the copier is in the middle of operation,

① It turns on the "Jam" message.

② When the jam has been removed, it indicates the "Turn On the Power" message.

③ When the power has been turned off and then on again, it runs a self check. It is reset if the result is good. If the result is not good, it enters down state*, indicating 'E5XX; on the control panel.

2 If the copier is not operating,

① It indicates the "Turn On the Power" message.

② When the power has been turned off and then on again, it runs a self check. It is reset if the result is good. If the result is not good, it enters down state*, indicating 'E5XX; on the control panel.

• Down State

① It indicates 'E5XX'.

② When the sorter has been detached**, it is ready for operation unless a mode requiring the sorter is selected.

③ If a mode requiring the sorter has been selected, it will indicate the "Mode Not Available" message.

■ The machine will be reset if the result of a self check after the power has been turned off and then on again is good even in down state. (This is with the sorter connected to the copier.)

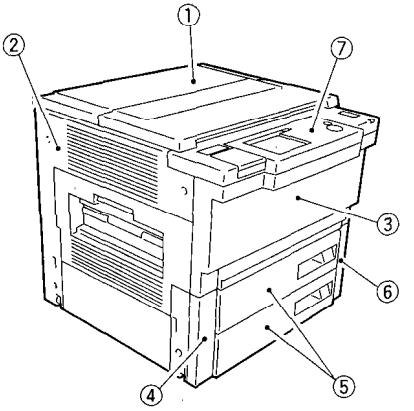
* State in which an error code is indicated.

** Turn off the joint sensor. The connector may remain connected.

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I. EXTERNALS

A. External Covers



① Copyboard cover
② Left cover (2)
③ Front door (1 + pin × 2)
④ Front left cover (2)
⑤ Cassette
⑥ Front right cover (2)
⑦ Control panel
⑧ Multifeeder inside cover (2)
⑨ Right cover (5)
⑩ Rear cover (4)
⑪ Pick-up path door (2)

Figure 4-101

Note:
The number in parentheses indicates the number of mounting screws used.
Remove the covers as necessary to clean, inspect, or repair the inside of the machine.
Those cover that may be detached by mere removal of the mounting screws used on their own are left out of the discussions.

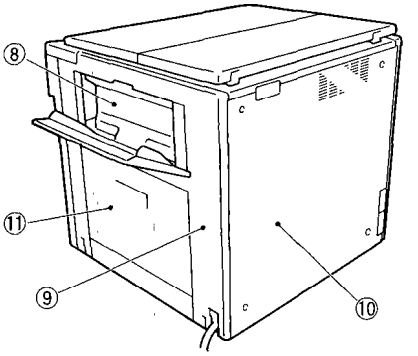


Figure 4-102

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B. Control Panel

1. Removing the Control Panel

1) Open the front cover.
2) Open the delivery assembly.
3) Remove the screw ① and two pins ②; then, remove the front cover.

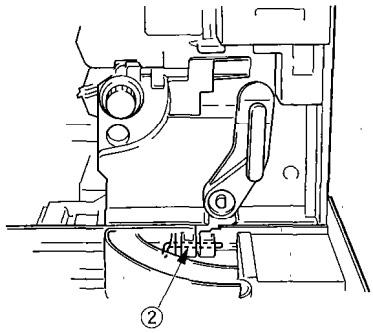


Figure 4-103

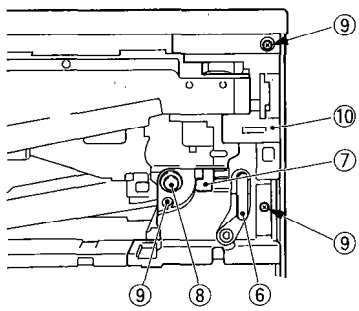


Figure 4-104

4) Open the hopper.
5) Remove the three screws ③; then, remove the fixing knob ④, and remove the left inside cover ⑤.

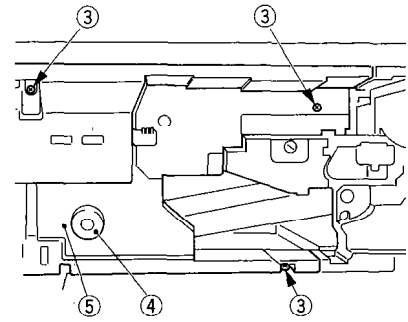


Figure 4-105

6) Close the hopper, and remove the feeding assembly releasing lever ⑥, connector cover ⑦, registration knob ⑧, and two screws ⑨; then, disconnect the connector, and remove the inside right cover ⑩.

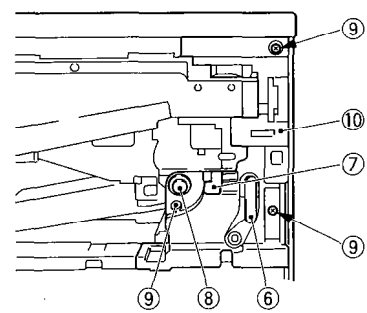


Figure 4-106

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6) Free the harness ⑫ from the harness retainer ⑪.

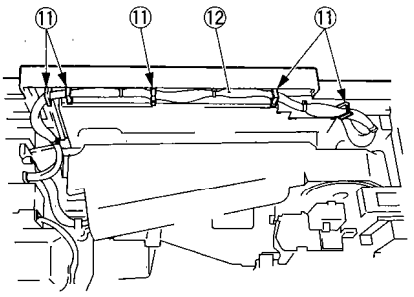


Figure 4-107

7) Remove the three screws ⑬.

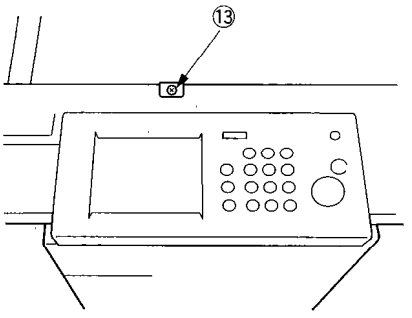


Figure 4-108

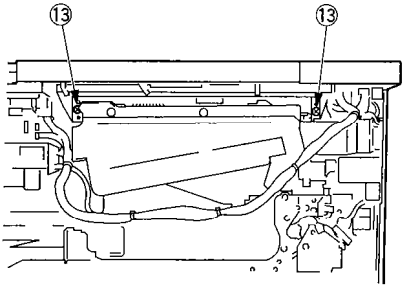


Figure 4-108a

8) Disconnect the three connectors ⑭, and remove the control panel.

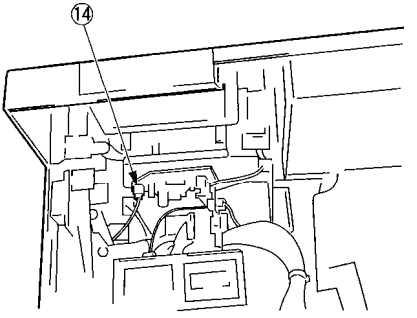


Figure 4-109

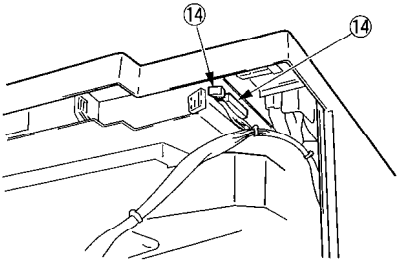


Figure 4-110

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C. Copyboard Cover

1. Replacing the Copyboard Sheet

The copyboard sheet is attached to the copyboard cover by means of two-sided adhesive tape attached on its back; you may remove it by pulling on its corners.

Be sure to press the entire face of the copyboard sheet whenever you have replaced it.

D. Fans

1. Outline

The NP6035 uses three fan motors to drive its fans to circulate air inside the machine and to prevent overheating.

Each of the fans has the following function:

Scanner cooling fan (FM1): Cools the scanner.

Heat exhaust fan (FM2): Discharges air from inside the machine to the outside.

Feeding fan (FM3): Moves copy paper.

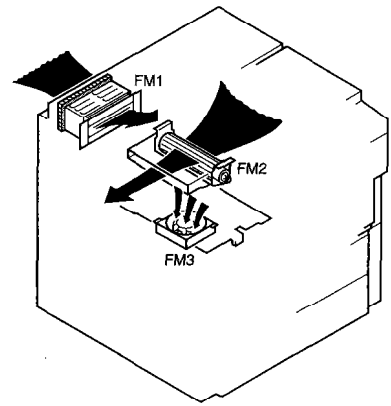


Figure 4-111

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2. Removing the Scanner Cooling Fan

1) Remove the rear cover.
2) Remove the connector J36 ⑭.
3) Free the harness ③ from the harness retainer ②.
4) Remove the four mounting screws ④, and remove the scanner cooling fan ⑤.

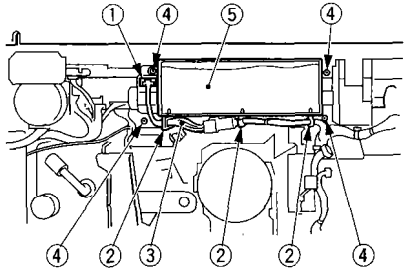


Figure 4-112

3. Removing the Heat Exhaust Fan

1) Remove the left cover.
2) Remove the inside left cover.
3) Disconnect the connector ①, and free the harness from the harness retainer ②; then, put the connector inside the machine.

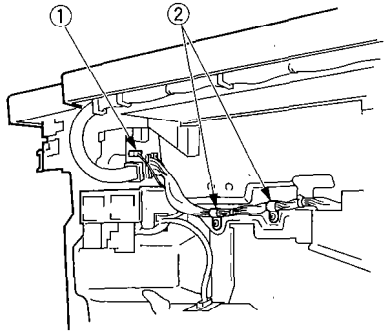


Figure 4-113

3) Remove the fixing assembly.
4) Remove the two screws ③, and remove the fan ④ in the direction of delivery together with the duct.

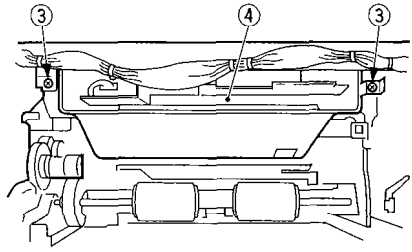


Figure 4-114

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II. DRIVE SYSTEM

A. Lens Drive Assembly

1. Removing the Lens Y Direction Drive Motor

1) Remove the copyboard glass.
2) Move the No. 1 mirror mount to the right end of the scanner rail.

Note:
Be sure to push the No. 1 mirror mount at its center.

3) Pull the tension support plate ① of the Y direction belt gear in the direction of the arrow to loosen the tension of the Y direction drive belt ②; then, detach the Y direction drive belt ② from the direction motor gear.
4) Disconnect the connector (J42) ③.
5) Remove the two mounting screws ④; then, remove the lens Y direction drive motor together with the support plate ⑤.

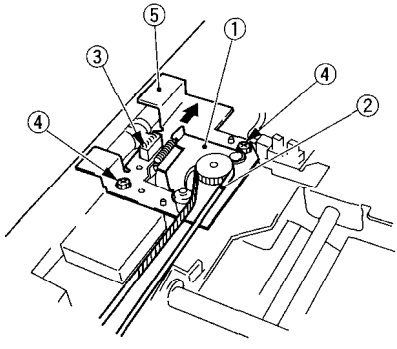


Figure 4-201

6) Remove the two mounting screws ⑧, and remove the motor ⑨ from the support plate.

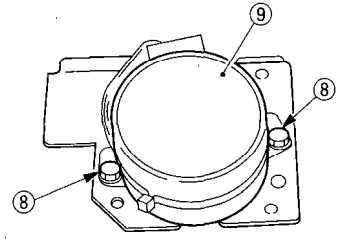


Figure 4-202

2. Removing the Lens Stage

1) Remove the copyboard glass.
2) Remove the screw ①, and remove the lens hood ②.

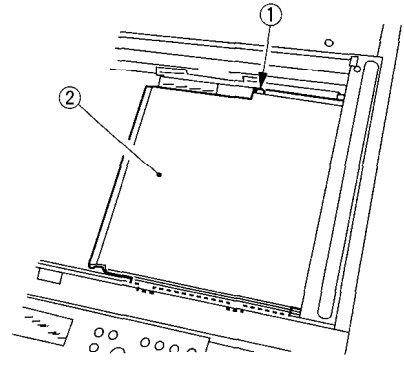


Figure 4-203

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3) Remove the lens Y direction drive belt from the front and the rear of the gear.
4) Remove the screw ⑤, and remove the light-blocking belt retainer ⑥ (lens mount).

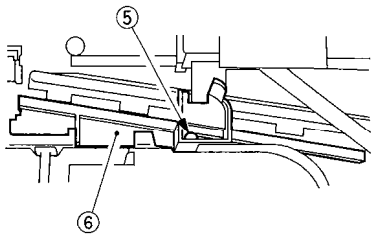


Figure 4-204

5) Remove the screw ⑨, and remove the light-blocking belt mount (rear) ⑩; then, temporarily keep the removed light-blocking belt mount on the lens stage with tape.

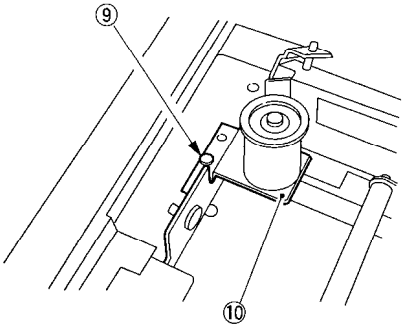


Figure 4-205

6) Remove the screw ⑪, and remove the light-blocking belt mount (front) ⑫; then, keep the removed light-blocking belt mount on the lens stage with tape.

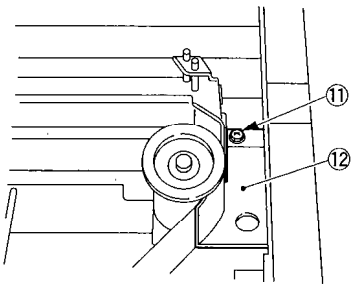


Figure 4-206

7) Lift the lens stage ⑬, and separate the bushing ⑭ from the rail ⑮.

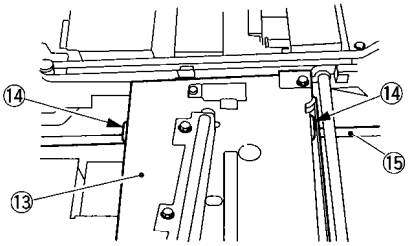


Figure 4-207

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8) Disconnect J90 ⑯, J89 ⑰, and J13 ⑱.

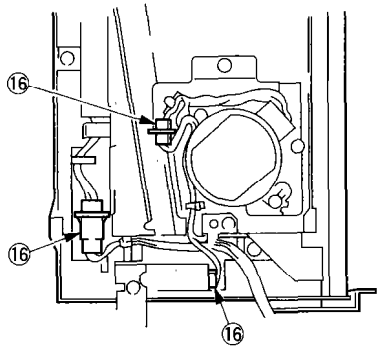


Figure 4-208

3. Removing the Lens X Direction Drive Motor

1) Remove the lens stage.
2) Remove the two screws ③, and remove the motor mount ①.

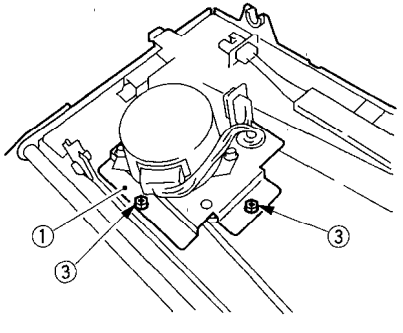


Figure 4-209

3) Remove the two screws ④, and remove the motor ⑤ from the motor mount.

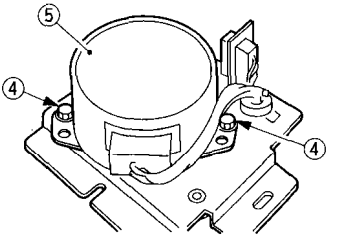


Figure 4-210

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4. Attaching the Lens X Direction Drive Belt

Move the lens X direction drive motor ② in the direction of the arrow so that the reading of the spring gauge is 30 ±10 g when the lens X direction drive belt ① is pushed 4 mm by the spring gauge at the point shown in Figure 4-211.

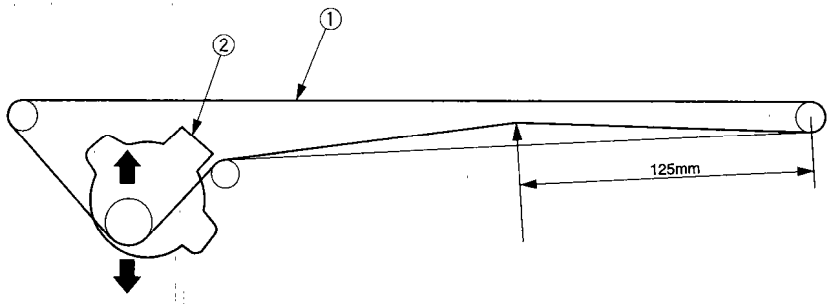
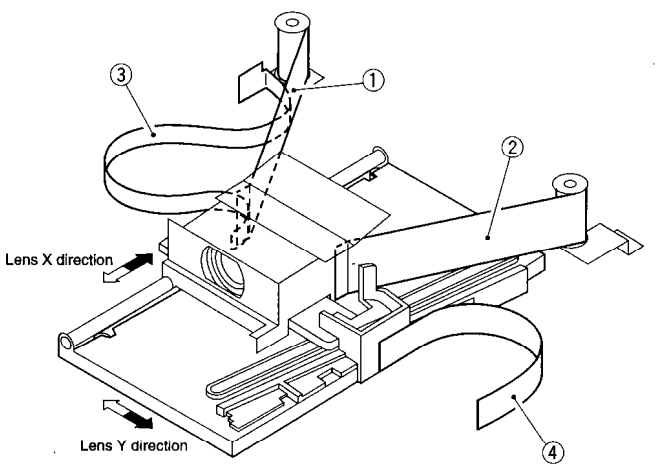


Figure 4-211

5. Installing the Light-Blocking Belt



① Light-blocking belt 1
② Light-blocking belt 2
③ Light-blocking belt 3
④ Light-blocking belt 4

Figure 4-212

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6. After Replacing the Light-Blocking Belt

1) Wind the belt ① on the bobbin ② in clockwise direction, and fix it with take-up tape ③.

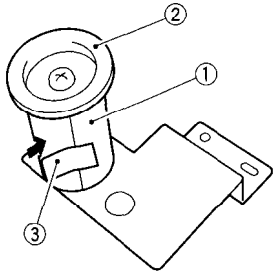


Figure 4-213

2) Fix the light-blocking belt mount to the lens mount.
3) Turn the bobbin in clockwise and counter-clockwise directions by giving it about half a turn, and release it so that the spring inside the bobbin will be free.
4) Remove the tape after turning the bobbin 2 to 2.5 times in clockwise direction, and pull out the end of the belt.
5) Fix the end of the belt in place to the lens with two clips.

B. Scanner Drive Assembly

1. Removing the Scanner Drive Motor

1) Remove the rear cover.
2) Disconnect J207 ① from the motor driver.
3) Remove the two screws, and remove the scanner drive motor ③.

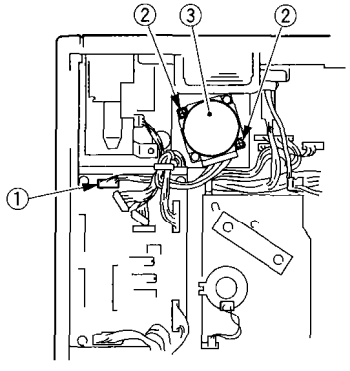


Figure 4-214

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2. Outline of the Scanner Drive Cable

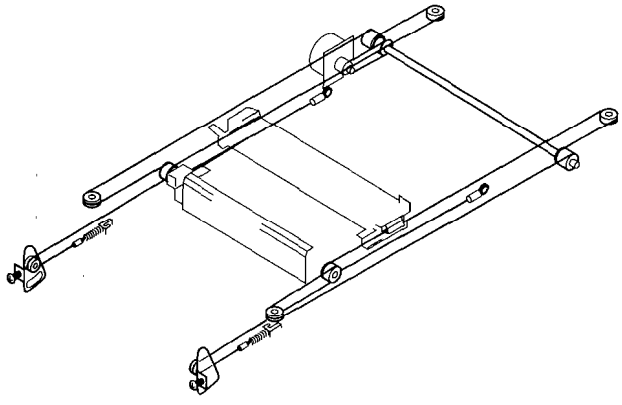


Figure 4-215

3. Removing the Scanner Drive Cable

1) Remove the copyboard cover, right cover, left cover, upper rear cover, and rear cover.
2) Remove the copyboard glass.
3) Remove the control panel.
4) Remove the two screws, and remove the power switch mount ②.

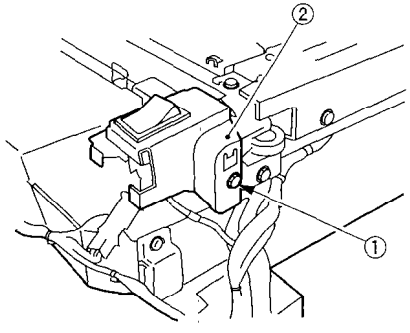


Figure 4-216

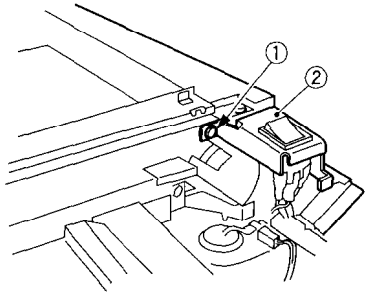


Figure 4-217

5) Remove the screw ③, and remove the pulley cover ④.

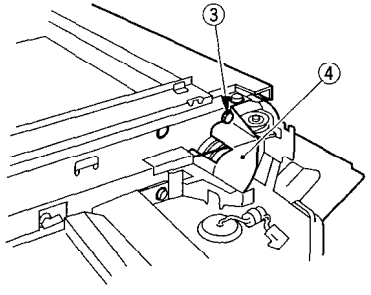


Figure 4-218

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6) Remove the four screws ④, and remove the upper left stay ⑤.

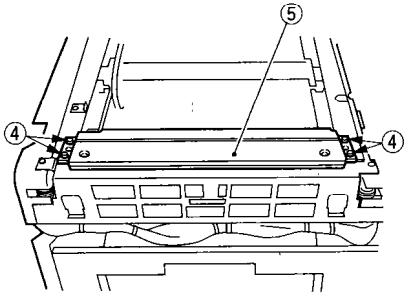


Figure 4-219

7) Remove the scanner cooling fan.
8) Remove the four screws ⑥, and remove the front glass support ⑦.

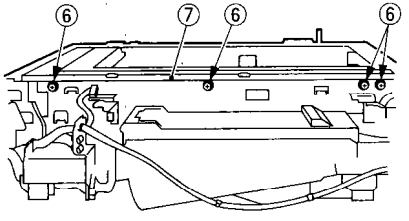


Figure 4-220

9) Disconnect the connector ⑧, and remove the two screws ⑨; then, remove the copyboard cover support ⑩.

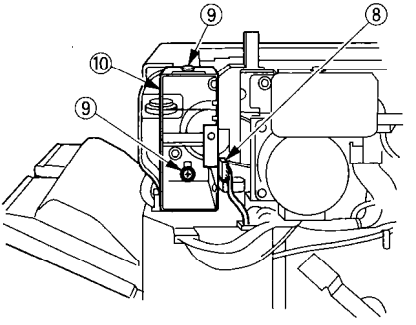


Figure 4-221

10) Remove the four screws ⑪, and remove the rear glass support ⑫.

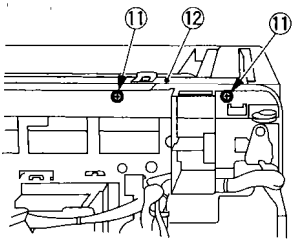


Figure 4-222

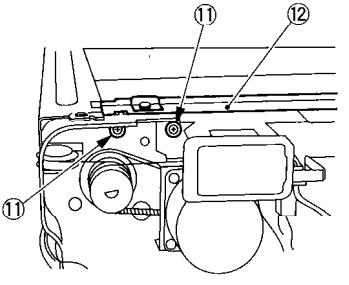


Figure 4-223

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11) Remove the two screws, and remove the transformer ⑭.

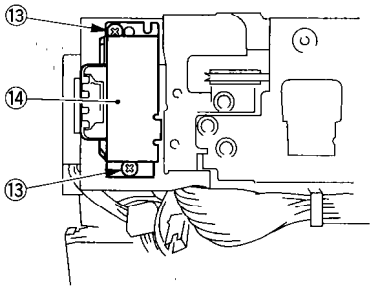


Figure 4-224

12) Mark the position of the pulley plate ⑮ on the side with a scribe (both front and rear).

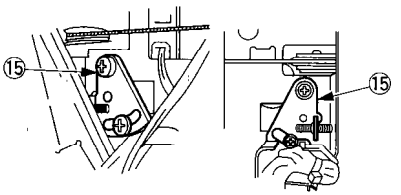


Figure 4-225

13) Move the No. 1 mirror mount forward, and match the angular hole in the side plate and the cable fixing screw ⑯.
Then, remove the two cable fixing screws ⑯, and separate the No. 1 mirror mount and the scanner cable (both front and rear).

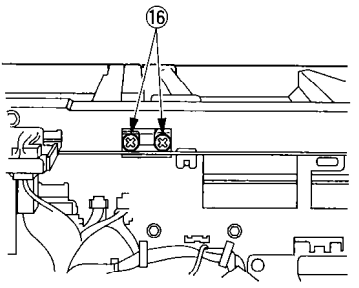


Figure 4-226

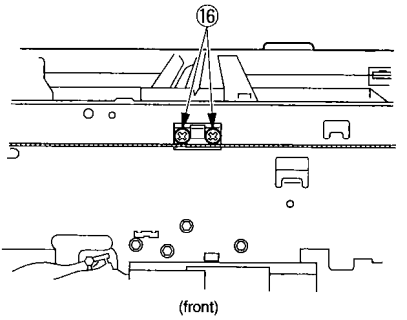


Figure 4-227

14) Loosen the pulley plate fixing screws ⑰, and loosen the tension screw ⑱; then, loosen the scanner cable (both front and rear).

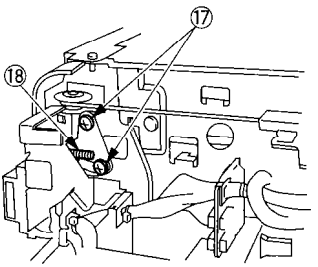
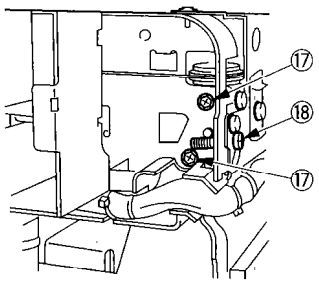


Figure 4-228

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(rear)

Figure 4-229

14) Remove the scanner cable (both front and rear).

Note:
You must procure the mirror positioning tool (FY9-3002-000) before routing the scanner cable.

4. Routing the Scanner Cable

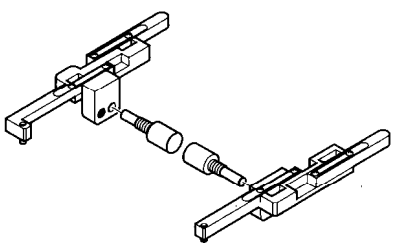


Figure 4-230

The tool may be shared with other models.

When using it for the NP6035, loosen the screw, extend both two arms at the front and the rear fully and tighten the screw.

1) Move the No. 2 mirror mount so that the pulley shaft ① of the No. 2 mirror mount is in view through the long hole in the side plate.

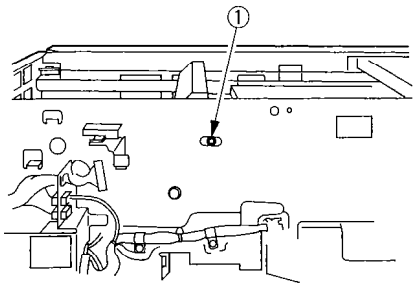


Figure 4-231

2) Fit the binding screw (M4) in the screw hole of the pulley shaft, and fix the No. 2 mirror mount to the side plate (both front and rear).

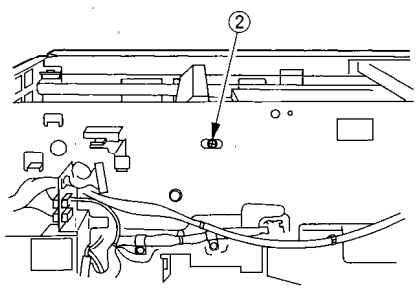


Figure 4-232

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3) Route the scanner cable on the pulley and then hook as shown in Figure 4-233.

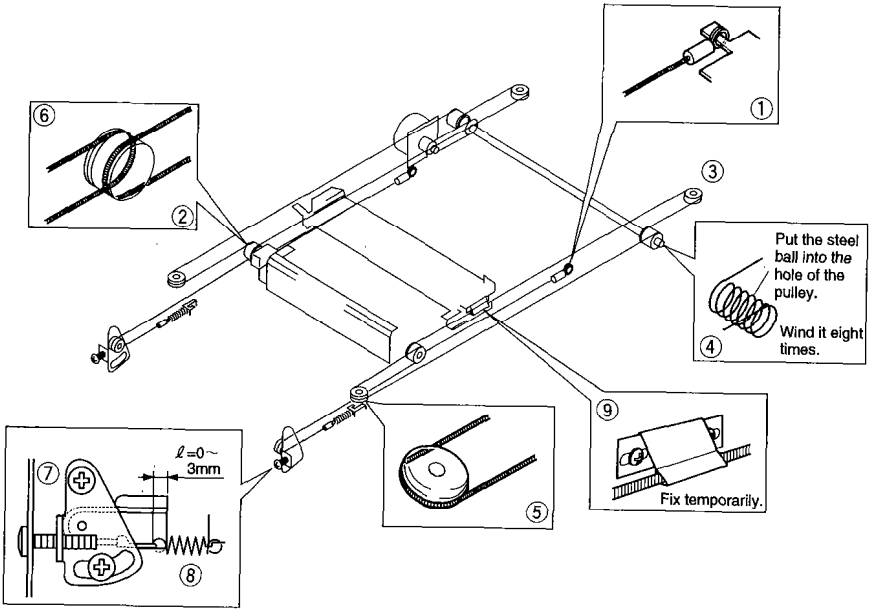


Figure 4-233

4) Remove the binding screws used in step 2) (both front and rear).

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5) Set the mirror positioning tool between the No. 1 mirror mount and the No. 2 mirror mount (both front and rear); then, insert the tool pin through the mirror positioning tool and the lens mount rail.

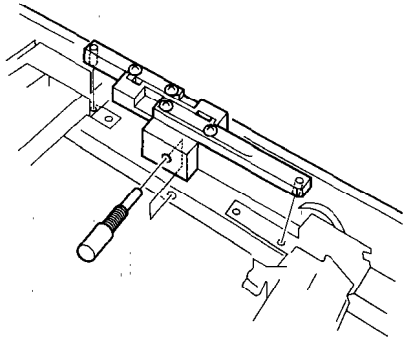


Figure 4-234

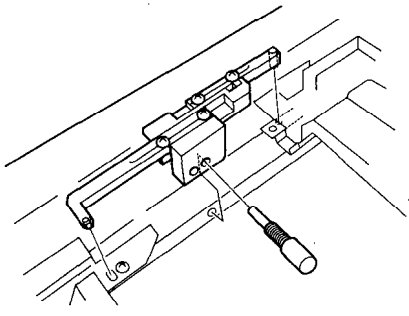


Figure 4-235

6) Install the scanner cable plate to the No. 1 mirror mount with two screws through the angular hole in the side plate (both front and rear).

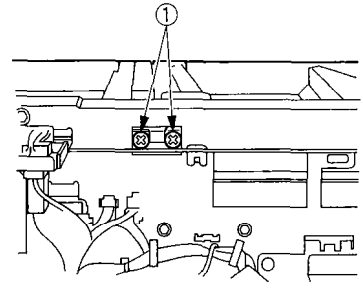


Figure 4-236

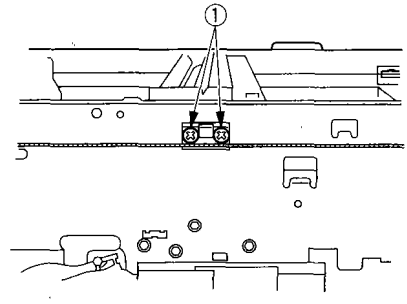


Figure 4-237

Note:
After the work, if it does not slide out smoothly, check the gap between the No. 2 mirror mount and the mirror position tool, and tighten the screw on the No. 1 mirror mount once again.

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5. Removing the Main Motor

1) Remove the rear cover.
2) Disconnect the connectors J501 ① and J502 ②.
3) Remove the four screws ③, and remove the main motor ④.

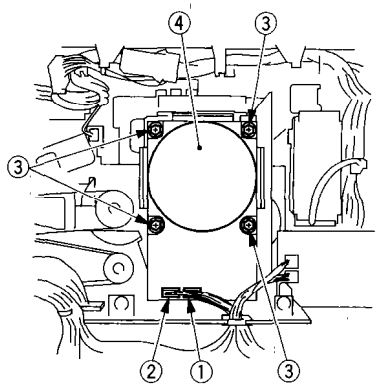


Figure 4-238

6. Removing the Registration Clutch

1) Remove the rear cover.
2) Disconnect J30 ①.

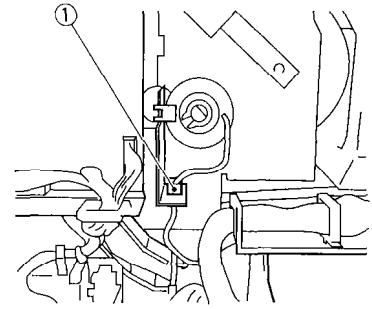


Figure 4-239

3) Remove the C-ring ②, and separate the registration clutch ③ from the registration roller shaft.

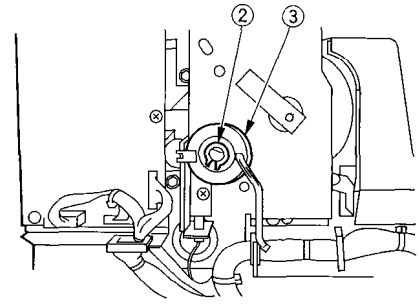


Figure 4-240

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7. Removing the Mirror Guide Plate

1) Remove the copyboard glass.
2) Remove the lens hood.
3) Remove the screw ①, and remove the mirror guide plate ②.

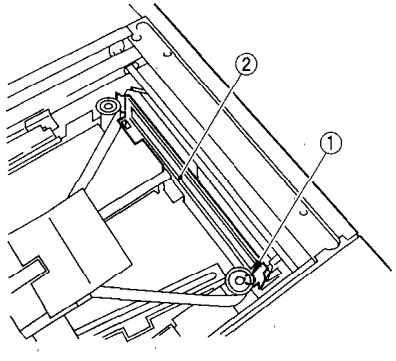


Figure 4-241

8. Removing the Main Drive Assembly

1) Remove the drum kit and the developing assembly.
2) Remove the rear cover.
3) Remove the pick-up assembly.
4) Remove the motor diver PCB.
5) Remove the faston ①.

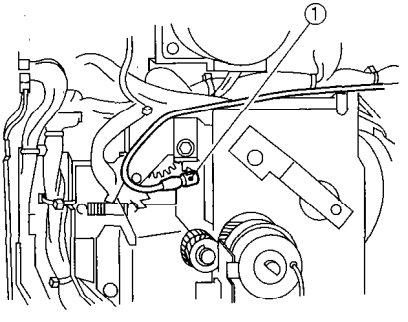


Figure 4-242

6) Remove the two screws ②, and slide the high-voltage terminal ③ up to remove. (Be sure to release the feeding assembly in advance.)

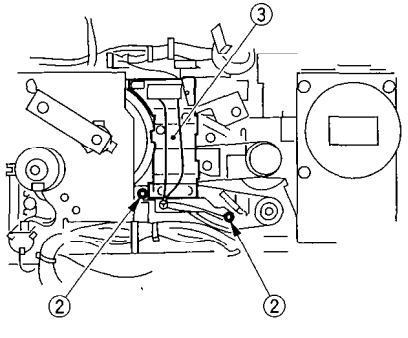


Figure 4-243

7) Remove the registration clutch.

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8) Disconnect the two connectors ④, and free the harness ⑦ from the edge saddle ⑧.

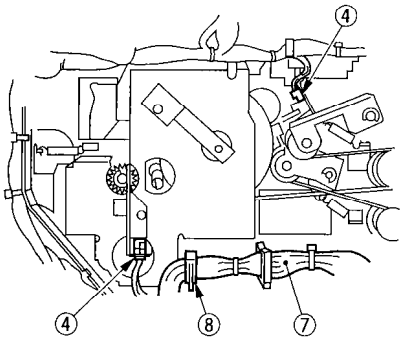


Figure 4-244

9) Remove the five screws ⑤, and detach the timing belt from the pulley A and the pulley B (Figure 4-246); then, remove the main drive assembly ⑥.

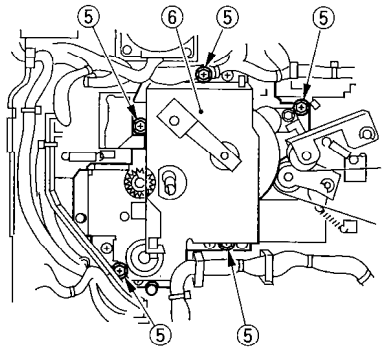


Figure 4-245

9. Routing the Drive Belt

Route the drive belt on the gears and rollers as shown in Figure 4-246.

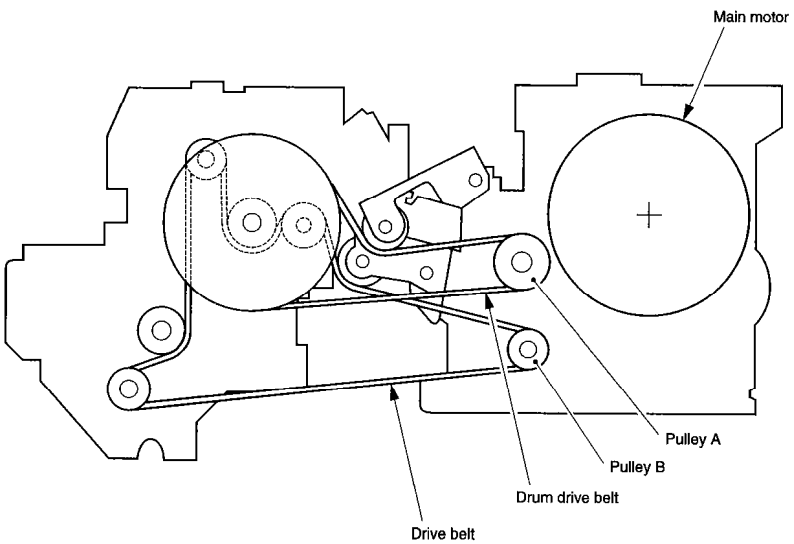


Figure 4-246

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10. Removing the Web Drive Assembly

1) Remove the rear cover.
2) Disconnect the connector J80 ①.
3) Remove the screw to free the 5V power supply ③.
4) Remove the screw ④, and remove the web drive assembly ⑤.

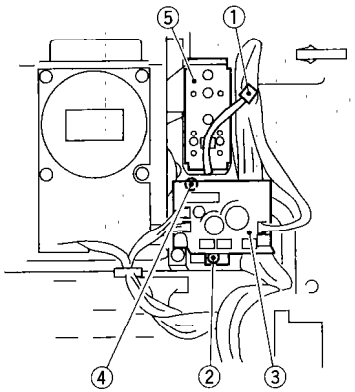


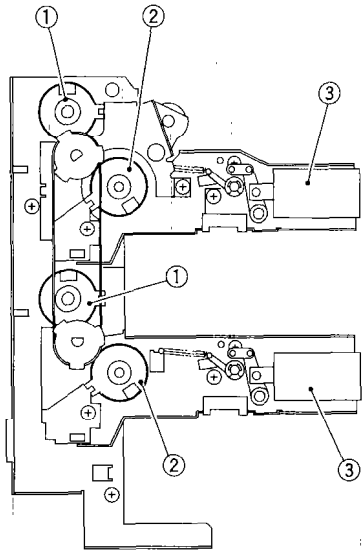
Figure 4-247

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III. PICK-UP/FEEDING SYSTEM

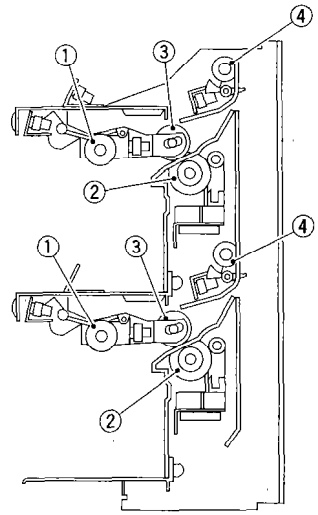
A. Pick-Up Assembly

1. Construction



① Vertical path roller clutch
② Pick-up roller clutch
③ Pick-up roller releasing solenoid

Figure 4-301 (rear view)



① Pick-up roller
② Separation roller
③ Feeding roller
④ Vertical path roller

Figure 4-302 (cross section)

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2. Removing the Pick-Up Assembly

1) Remove the cassette from the copier.
2) Remove the multifeeder inside cover and the right cover.
3) Remove the front right cover.
4) Disconnect the two connectors ① of the lifter motor.
5) Remove the four screws ②, and remove the cassette lifter motor assembly ③.

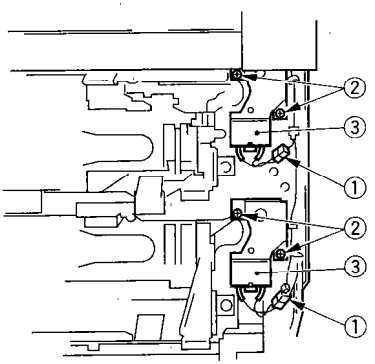


Figure 4-303

6) If a pedestal is used, open the pedestal right door, remove the screw ④ and the leaf spring ⑤, and shift the registration guide ⑧ to the outside.

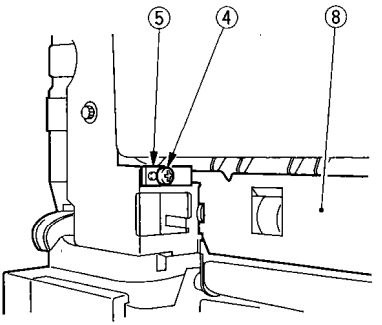


Figure 4-304

7) Disconnect the three connectors ⑥ of the pick-up assembly.
8) Remove the six screws, and remove the pick-up assembly.

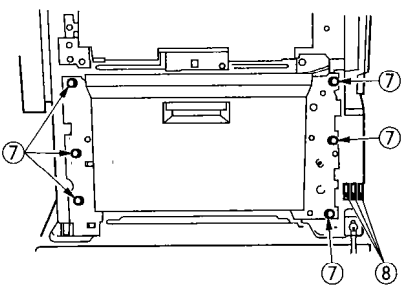


Figure 4-305

Caution:

Be sure to hold the pick-up assembly side plates whenever you are installing or removing the pick-up assembly.

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3. Removing the Pick-Up Roller

1) Remove the pick-up assembly.
2) Remove the stop ring (plastic) ①, and pull out the pick-up roller ② together with its collar.

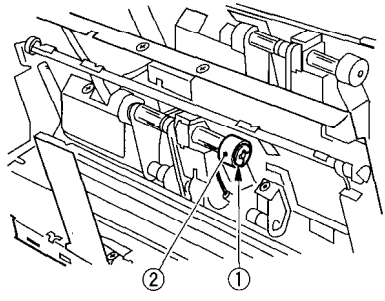


Figure 4-306

4. Points to Note When Installing the Pick-Up Roller

a. When installing the pick-up roller ① to the pick-up assembly, be sure that the round marking ② on the rubber portion is toward the front of the copier.

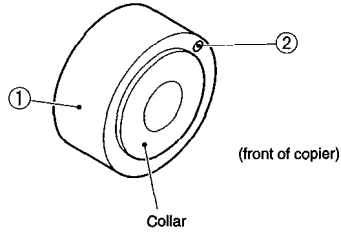


Figure 4-307

The pick-up rollers are identified by color as follows:
If brass, use it for the front.
If silver, use it for the rear.

b. Do not separate the rubber portion of the pick-up roller from the collar.

5. Removing the Feeding Roller

1) Remove the pick-up roller.
2) Remove the screw ①, and remove the pick-up inlet guide ②.

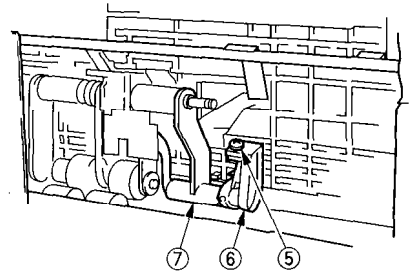


Figure 4-308

3) Remove the pick-up roller from the front and the rear.
4) Remove the screw ⑤, and remove the pick-up roller arm bushing ⑥ and the pick-up roller arm ⑦.

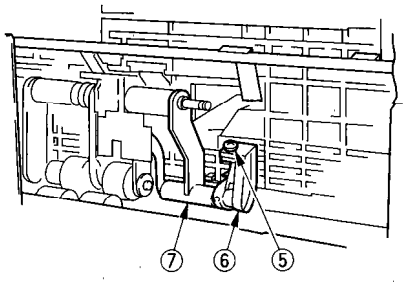


Figure 4-309

5) Disconnect the connector ⑧ and the stop ring of the feeding roller ⑨; then, pull out the pick-up roller unit ⑩ and the feeding roller ⑪at the same time.

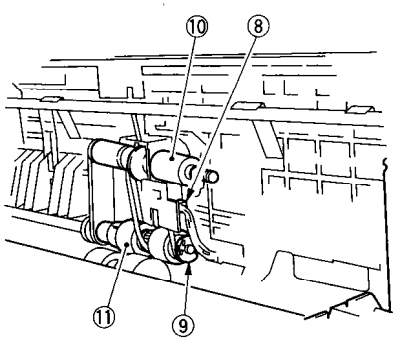


Figure 4-310

Reference:

Whenever installing the feeding roller ① to the pick-up assembly, be sure so that the gear ②attached to the feeding roller is toward the rear of the copier.

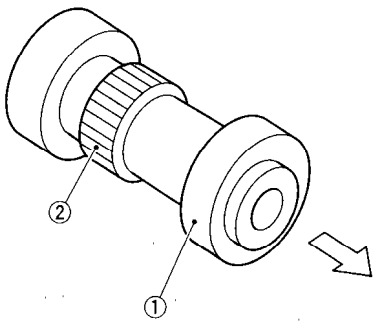


Figure 4-311

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6. Removing the Separation Roller

1) Remove the pick-up assembly.
2) Remove the pick-up vertical path door.
3) Remove the screw ①, and remove the pick-up inlet guide ②.

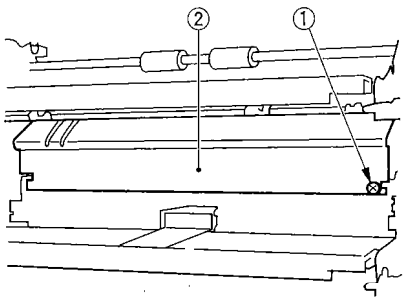


Figure 4-312

4) Free the spring ③ from the hook (one side).
5) Remove the two stop rings ④ (both right and left).

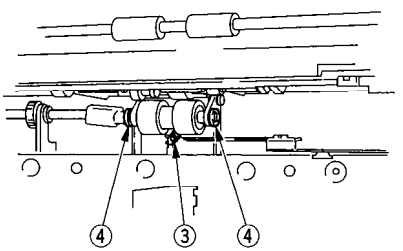


Figure 4-313

6) Remove the two screws ⑤ and the vertical path guide ⑥; then, disconnect the connector ⑦.

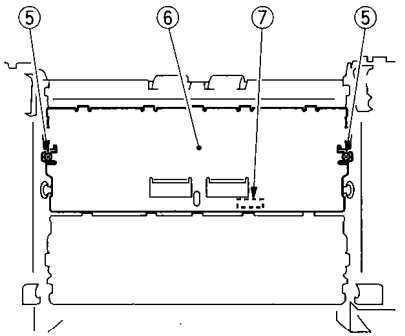


Figure 4-314

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7) Remove the stop ring ⑦ and the support shaft ⑧.
8) Remove the separation roller unit ⑨.

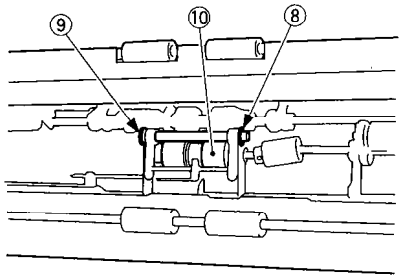


Figure 4-315

9) Pull out the separation roller shaft, and remove the separation roller.

Reference:

Whenever installing the separation roller ① to the pick-up assembly, be sure so that the D-cut will be toward the front of the copier.

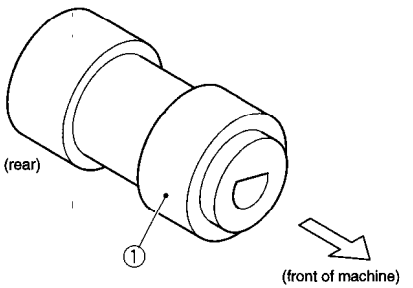


Figure 4-316

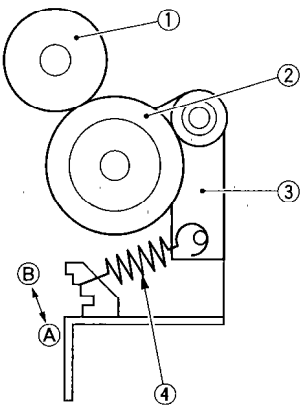
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7. Adjusting the Pressure of the Separation Roller

If double feeding or pick-up failure occurs during pick-up, change the position of the pressure spring of the separation roller.

① If double feeding occurs, hook the spring on the side of A.

② If pick-up failure occurs, hook the spring on the side of B.



① Feeding roller
② Separation roller
③ Locking lever
④ Pressure spring

Figure 4-317

8 Positioning the Pick-Up Assembly Pick-Up Roller Releasing Solenoid SL1, SL2)

Install the solenoid so that the pick-up roller arm ① shown in Figure 4-323 butts against the upper stay ② when the plunger of the solenoid is pushed in.

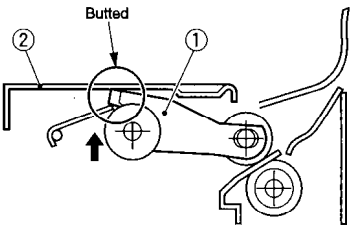


Figure 4-318

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9. Releasing the Lifter

If the lifter is up, push the lifter releasing arm ① to lower it.

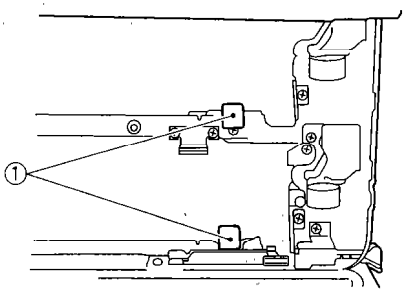


Figure 4-319

10. Adjusting the Registration (left/right)

1) Remove the front lower cover.
2) Loosen the screw ①, and adjust the position of the cassette hook plate ② so that the reading is 0 ±1.5 mm.

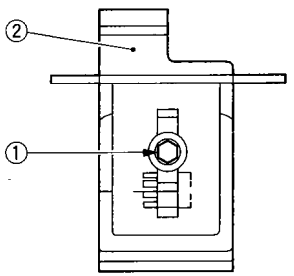


Figure 4-320

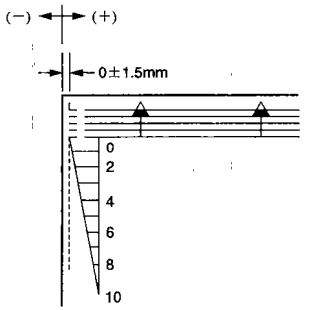


Figure 4-321

3) After adjustment, register the paper width basic value for the cassette you have adjusted. (See the Service Handbook.)

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B. Multifeeder Assembly

1. Removing the Multifeeder Assembly

1) Remove the multifeeder inside cover and the right cover.
2) Disconnect the connector ①.
3) Remove the four screws ②, and remove the multifeeder assembly ③.

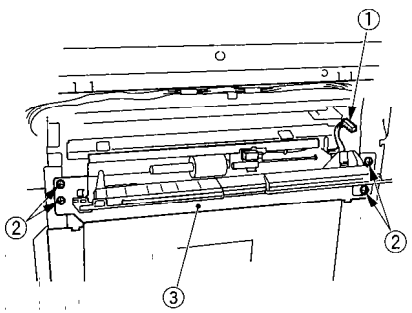


Figure 4-322

2. Removing the Multifeeder Pick-Up Roller/Separation Pad

1) Remove the multifeeder assembly.
2) Remove the stop ring ①.
3) While pushing down the separation pad ②, remove the pick-up roller ③.

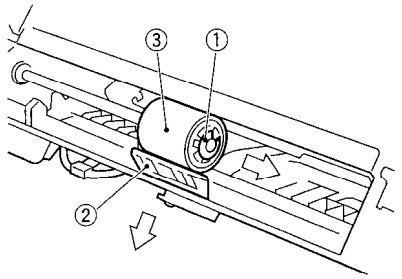


Figure 4-323

4) Raise the multifeeder tray.
5) Remove the screw ④, and remove the separation pad assembly ⑤.

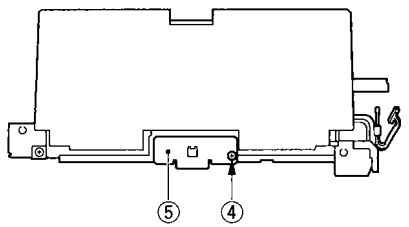


Figure 4-324

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Reference:

When installing the multifeeder pick-up roller 1, be sure that the cross on the collar 2 is toward the rear.

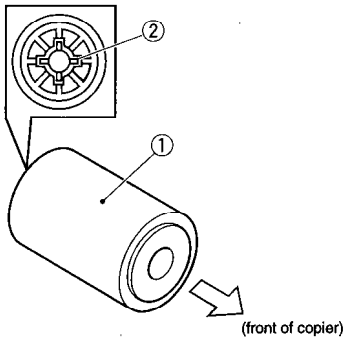


Figure 4-325

3. Adjusting the Pressure on the Separation Pad

If double feeding or pick-up failure occurs during pick-up, change the position of the separation pad:

① If double feeding occurs, move the position of the spring holder ① toward Ⓑ.

② If pick-up failure occurs, move the position of the spring holder ① toward Ⓐ.

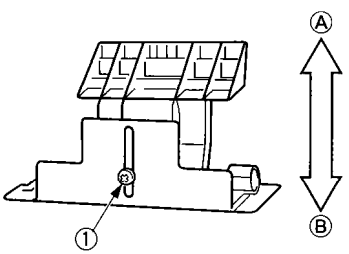


Figure 4-326

4. Adjusting the Left/Right Registration

If the left-right registration is wrong when pick-up occurs in the multifeeder, loosen the screws ①, and adjust the position of the tray.

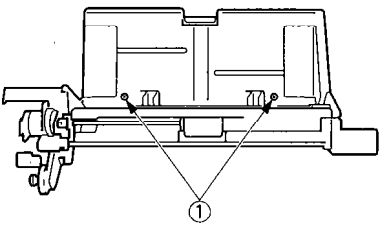


Figure 4-327

5. Adjusting the Paper Guide Plate Cam (multifeeder assembly)

Adjust the engagement of the 26T gear 1 and the 26T gear 2 so that, when the solenoid plate is in contact with the claw of the control ring, the paper guide plate and the paper guide plate cam are as shown in Figure 4-328.

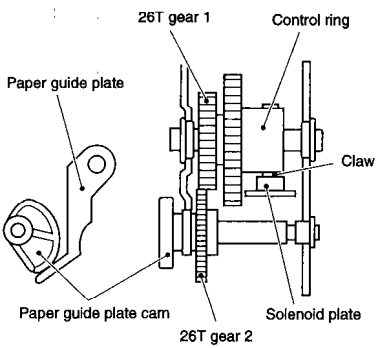


Figure 4-328

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6. Routing the Timing Belt (multifeeder assembly)

Butt the rack plate of the multifeeder against section A (open condition).

Move the slide volume in the direction of B, and attach the timing belt on the pulley.

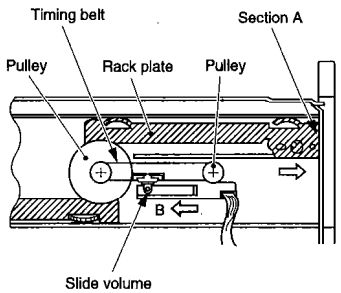


Figure 4-329

C. Registration Roller Assembly

1. Removing the Registration Roller

1) Open the front cover.
2) Release the feeding assembly.
3) Remove the transfer charging assembly.
4) Remove the inside left cover and the inside right cover.
5) Remove the developing assembly and the drum unit.
6) Remove the rear cover.
7) Remove the registration roller clutch.
8) Remove the main drive assembly.
9) Disconnect the connector ①, and remove the screw ② (varistor).

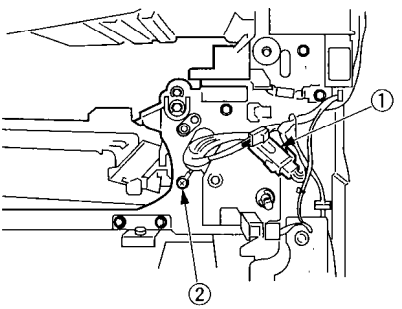


Figure 4-330

10) Remove the screw, and remove the bushing ③; then, remove the transfer guide ④.

Caution:
- At this time, pay attention to the spring at the rear of the feeding assembly.
- If removal is difficult, you may loosen the bushing ③ at the rear of the copier.

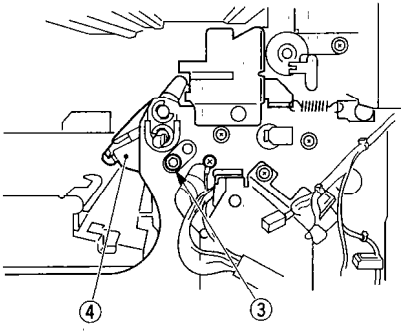


Figure 4-331

11) Remove the shaft regaining spring ⑤, two E-rings ⑥, and two bushings ⑦ (both front and rear).

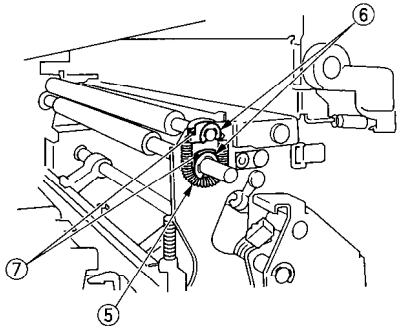


Figure 4-332

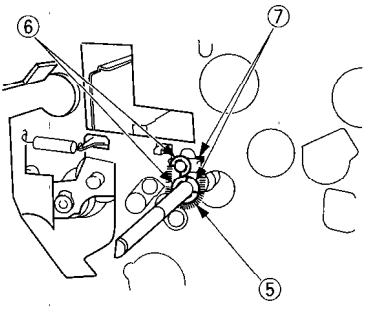


Figure 4-333

12) Remove the registration roller ⑧.

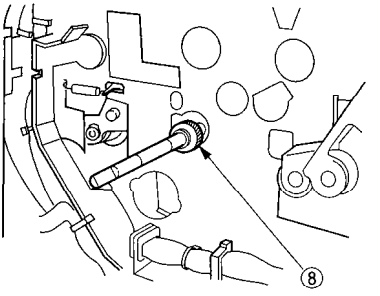


Figure 4-334

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D. Feeding Assembly

1. Feeding Assembly

When removing the feeding assembly, be sure to remove the drum unit, transfer charging assembly, developing assembly, and fixing

1) Disconnect the connector (J67) ①.

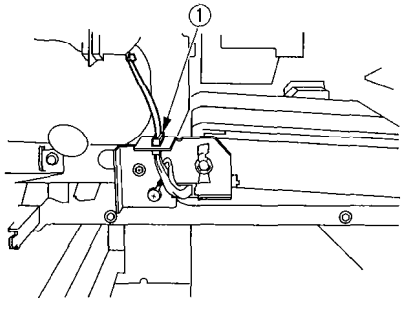


Figure 4-335

2) Remove the screw ③, and remove the bushing support plate ④.

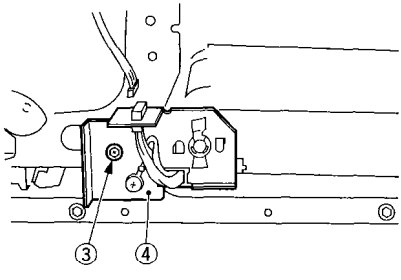


Figure 336

3) While paying attention to the spring at the rear of the feeding assembly ⑤, slide out the feeding assembly ⑤ to the front.

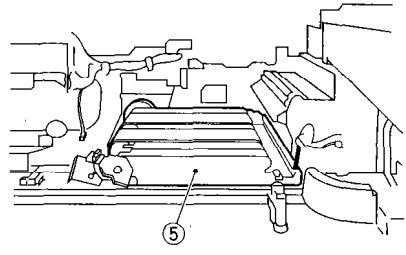


Figure 4-337

2. Removing the Feeding Belt

1) Remove the feeding assembly.
2) Remove the three screws ①, and remove the electrode mount ②.

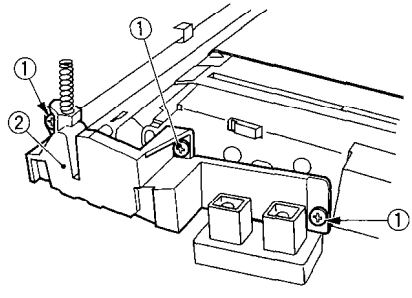


Figure 4-338

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3) Remove the screw ③, and remove the stopper plate ④.
4) Remove the three screws ⑤, and disengage the spring ⑥ from the hole.
5) Remove the solenoid arm together with the plunger ⑦; then, remove the transfer charging assembly rail ⑧.

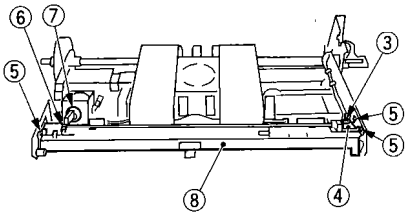


Figure 4-339

6) Remove the two rolls ⑨.

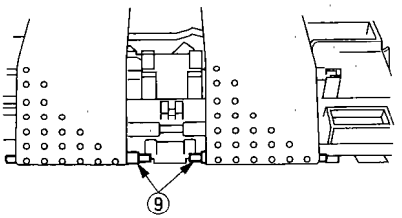


Figure 4-340

7) Detach the feeding belts ⑩.

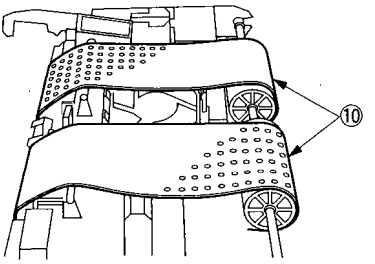


Figure 4-341

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3. Removing the Feeding Fan

1) Remove the feeding assembly.
2) Detach the feeding belt.
3) Remove the two rolls ①, and disconnect the connector (J68) ②.

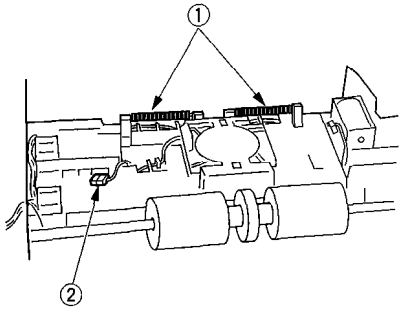


Figure 4-342

4) Remove the screw ③, and remove the round terminal of the varistor.
5) Push up the hook ④ with a screwdriver, and remove the feeding top plate ⑤.

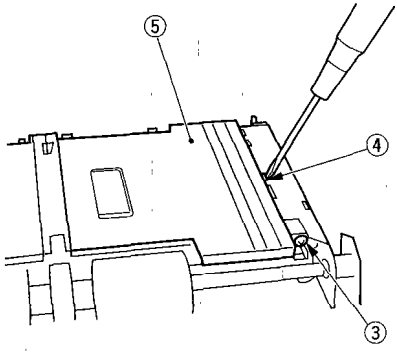


Figure 4-343

6) Remove the guide ⑥, and remove the hook assembly ⑦; then, remove the feeding fan ⑧.

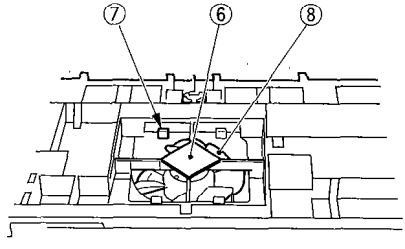


Figure 4-344

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4. Adjusting the Position of the Transfer Roller Releasing Solenoid

Set the spring to the releasing link (rear) ①; then, move the solenoid ② in the direction of the arrow Ⓑ so that the ℓ in Figure 4-345 is 6.0 ±2 mm when the link is pulled in the direction of the arrow Ⓐ.

After adjustment, make sure that the solenoid shaft and the releasing link (front, rear) move smoothly.

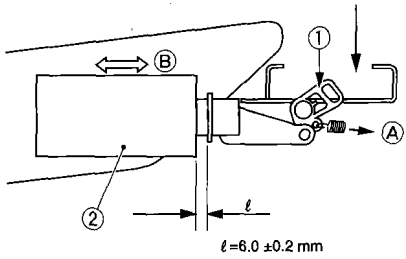


Figure 4-345

E. Delivery Assembly

1. Removing the Delivery Assembly

1) Remove the left cover and the front left cover.
2) Open the delivery assembly.
3) Remove the connector cover ①.

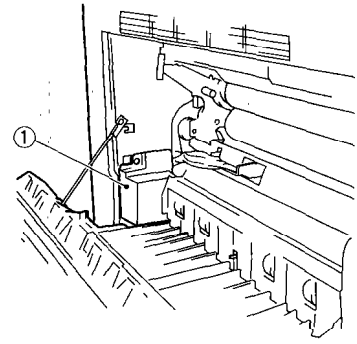
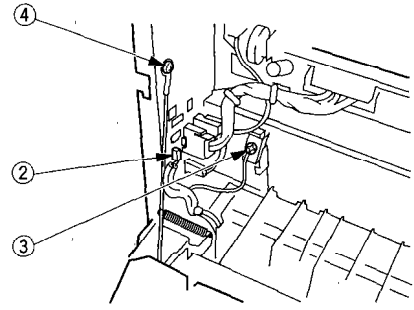


Figure 4-346

4) Disconnect the connector ②, and remove the grounding wire fixing screw ③.



5) Remove the wiring fixing screw (rear) ④.

Figure 4-347

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6) Remove the wire fixing screw (front) ⑤.
7) Remove the screw ⑦, and remove the shaft plate ⑥; then, remove the delivery assembly. Take care not to drop the delivery assembly.

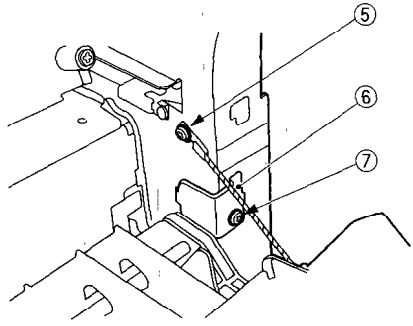


Figure 4-348

2. Removing the Upper Separation Claw

1) Open the delivery assembly.
2) Remove the screw ①, and remove the insulating cover ②.

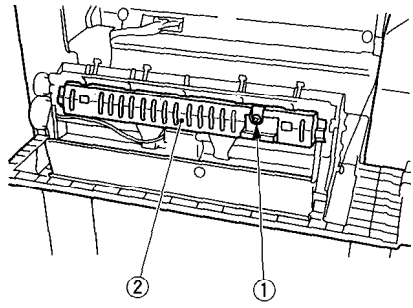


Figure 4-349

3) Remove the two screws ③, and remove the upper separation claw unit ④.

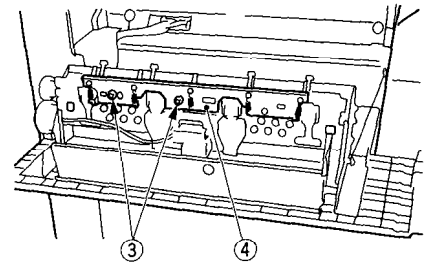


Figure 4-350

4) Remove the spring ⑤, and remove the upper separation claw ⑥.

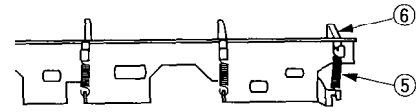


Figure 4-351

Caution:
When installing the upper separation claw unit, be sure to move it to the front.

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3. Removing the Lower Separation Claw

1) *Open the delivery assembly.*
2) Remove the four springs ① of the lower separation claw.

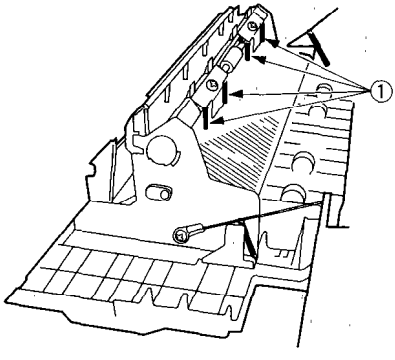


Figure 4-352

3) Remove the two screws ②, and remove the lower separation claw support plate ③.

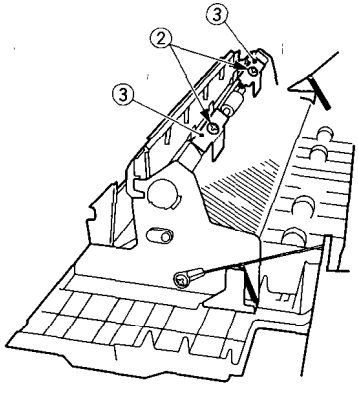


Figure 4-353

4) Remove the four lower separation claws ④.

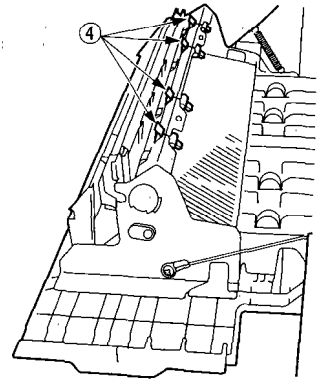


Figure 4-354

4. Positioning the Paper Deflecting Plate Drive Solenoid (SL4)

Make sure that the shaft end roll of the paper deflecting plate shown in Figure 4-355 on the delivery assembly front side plate is in contact with the round long hole in the delivery assembly side plate when the plunger of the solenoid is pushed in.

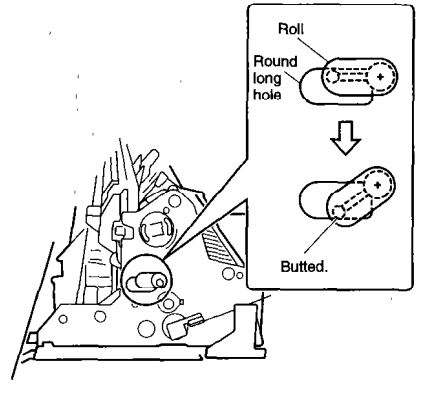


Figure 4-355

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IV. EXPOSURE SYSTEM

A. Illumination System

1. Removing the Scanning Lamp

1) Disconnect the power plug.
2) Remove the copyboard glass.
3) Remove the screw ①, and remove the anti-reflection plate ②.

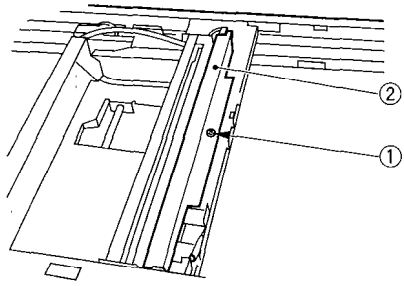


Figure 4-401

4) Orient a flat-blade screwdriver in the direction of the arrow ①, and open the electrode plate in the direction of the arrow ② to remove the scanning lamp.

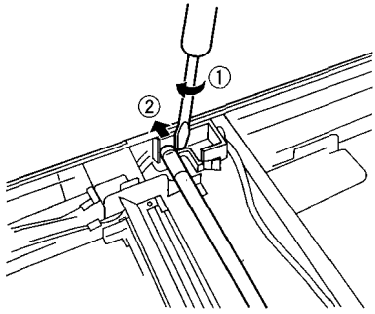


Figure 4-402

Caution:

1. Do not start work if the surface of the scanning lamp is hot.
2. Do not leave fingerprints on the surface of the scanning lamp.
3. If the surface of the scanning lamp is soiled, dry wipe it.

2. Orientation of the Lamp

Install the lamp so that the boss at the center is in the direction of the arrow (mirror mount reverse direction); make sure that the marking is toward the front.

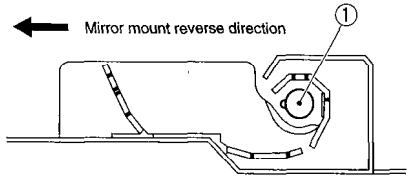


Figure 4-403

Caution:

When installing the lamp, be sure not to touch its surface.

3. Removing the Thermal Fuse

1) Remove the copyboard glass.
2) Remove the screw ①, and remove the attraction plate ②.

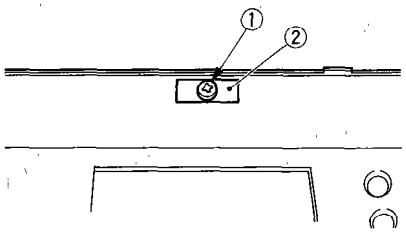


Figure 4-404

3) Holding the No. 1 mirror mount ③ at its center, move it to the right until it is positioned as shown in Figure 4-405.

Caution:

When handling the No. 1 mirror mount, be sure to hold it at its center; do not touch the lamp or the reflecting shade.

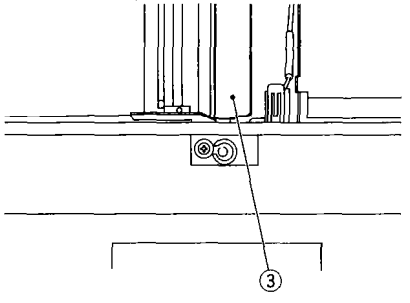


Figure 4-405

4) Remove the two screws ④, and remove the thermal fuse ⑤.

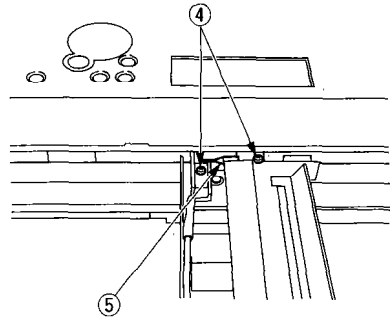


Figure 4-406

4. Removing the Blank Exposure Assembly

1) Open the front door, and remove the inside left cover.
2) Remove the developing assembly and the drum unit.
3) Disconnect J91 ① and J95 ②.
4) Remove the two screws ③, and remove the harness retainer.

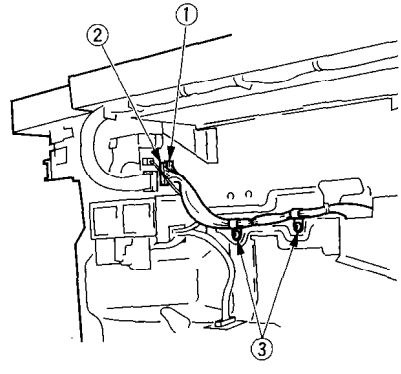


Figure 4-407

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5) Remove the two screws ④.

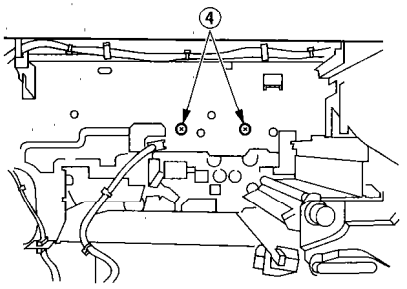


Figure 4-408

6) Slide out the blanking exposure assembly ⑤ slowly to the front.

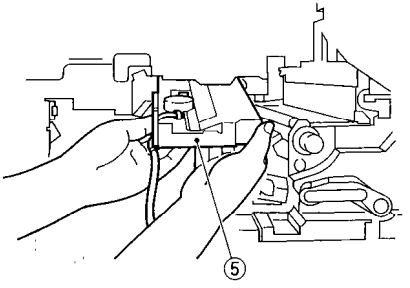


Figure 4-409

5. Removing the Blanking Exposure Lamp

1) Remove the blanking exposure assembly.
2) Remove the two screws ①, and remove the blanking upper plate ②.

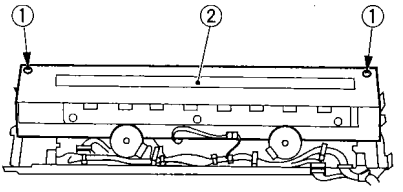


Figure 4-410

3) Disconnect J93 ③ and J94 ④.

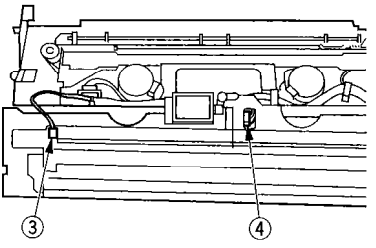


Figure 4-411

4) Remove the three screws ⑤, and remove the blanking exposure lamp ⑥.

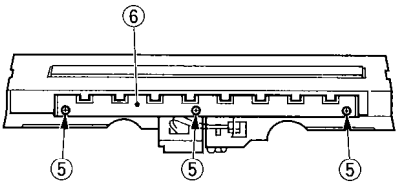


Figure 4-412

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6. Removing the Blanking Shutter Solenoid

1) Remove the blanking exposure assembly.
2) Remove the blanking top plate, and disconnect J93 and J94. (See 5. "Removing the Blanking Exposure Lamp.")
3) Remove the screw ① and the spring ②; then, free the link arm ③ from the blanking shutter.

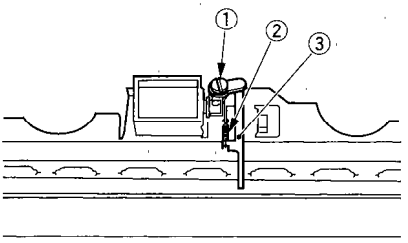


Figure 4-413

4) Remove the two screws ④, and disconnect the connector ⑥; then, pull up and out the blanking shutter solenoid ⑤.

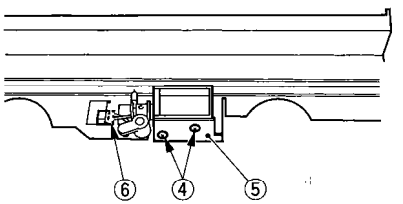


Figure 4-414

7. Positioning the Blanking Shutter Solenoid

Position the solenoid so that section A is 7.7 ±0.5 mm for both sides of the shutter when the solenoid is moved in the direction of activation. (When taking measurements, be sure not to force the shutter.)

After adjustment, check to make sure that the solenoid moves smoothly.

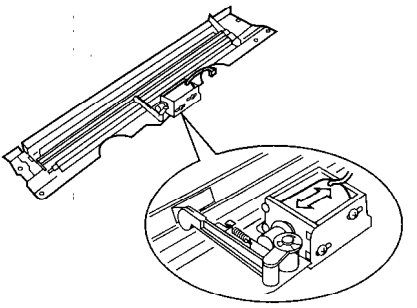


Figure 4-415a

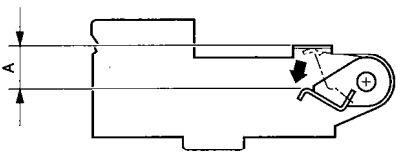


Figure 4-415b

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8. Removing the Blanking Motor

1) Remove the blanking exposure assembly.
2) Remove the blanking top plate, and disconnect J93 and J94. (See 5. "Removing the Blanking Exposure Lamp.")
3) Disconnect J92 ① and J96 ②.

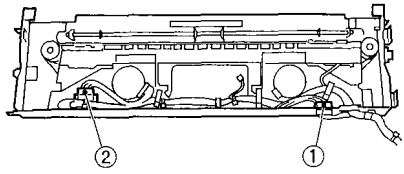


Figure 4-416

4) Remove the four screws ③, and pull up and out the blanking motor ④.

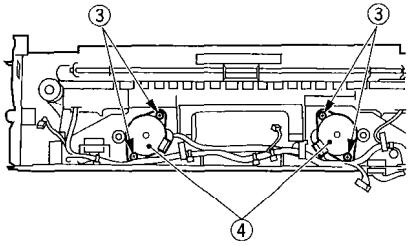


Figure 4-417

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9. Routing the Blanking Cable

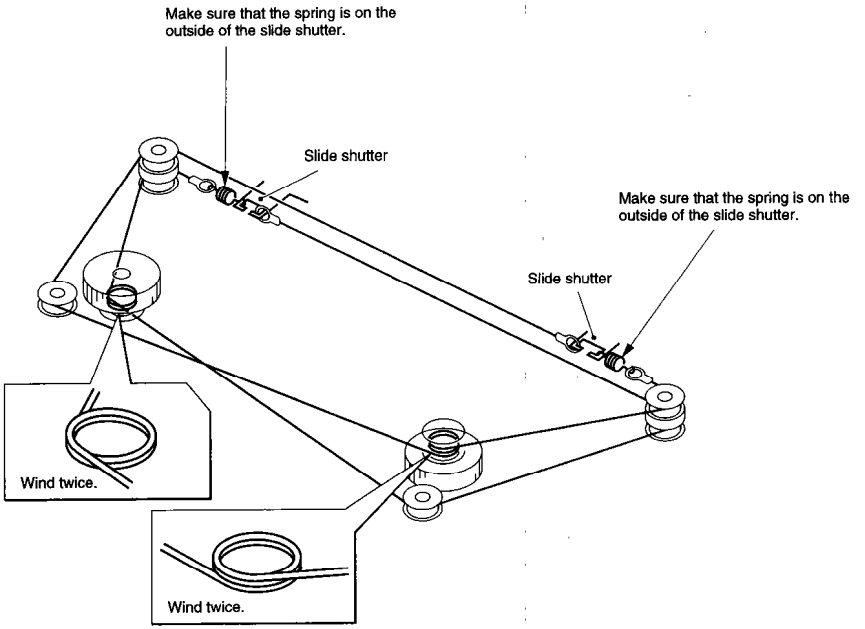

Make sure that the spring is on the outside of the slide shutter.
Slide shutter
Make sure that the spring is on the outside of the slide shutter.
Slide shutter
Wind twice.
Wind twice.

Figure 4-418

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V. CHARGING SYSTEM

A. Drum Unit

1. Removing the Drum Unit

1) Open the front door.
2) Turn the developing assembly releasing lever ① counterclockwise.

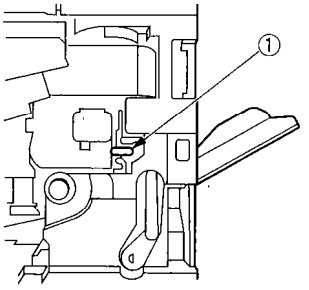


Figure 4-501

3) Open the hopper, and release the feeding assembly.
4) Remove the knob ②.
5) Slide out the drum unit ③ slowly to the front.

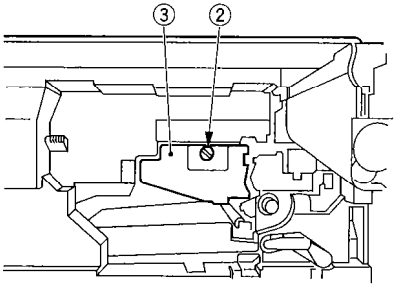


Figure 4-502

Caution:

Take care not to damage the photosensitive drum.

Caution:

The photosensitive drum is highly susceptible to light, and mere exposure to room lighting can lead to white spots or black lines.
As a rule, do not turn on the power in the absence of the drum unit.
- Otherwise, the interference between the registration roller and the transfer guide will damage the registration roller when the roller starts to rotate in WMUPR.

2. Cleaning

If the surface of the photosensitive drum is soiled, wipe it with a flannel cloth coated with toner; do not use paper, lint-free or otherwise.

Caution:

Do not dry-wipe or use solvent. Do not use drum cleaning powder.

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B. Transfer Charging Assembly

1. Removing the Transfer Charging Assembly

1) Open the front door.
2) Release the feeding assembly.
3) Remove the screw ①, and remove the charging assembly retainer ②.

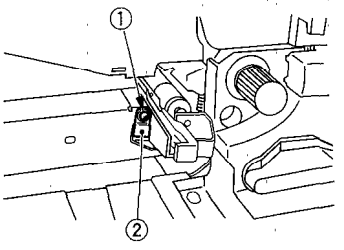


Figure 4-503

4) While lifting the transfer roller cover, pull out the transfer charging assembly ③ to the front.

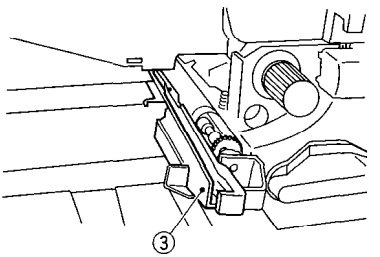


Figure 4-504

Caution:

When removing or installing the transfer charging assembly, be sure to lift the roller cover so that the transfer roller and the roller cover will not come into contact with each other.

2. Removing the Transfer Roller

1) Remove the transfer charging assembly.
2) Remove the bushing covers front ① and rear ②.

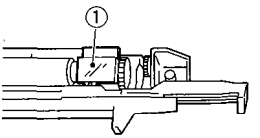


Figure 4-505

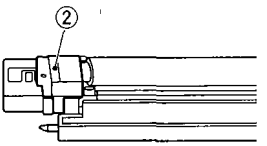
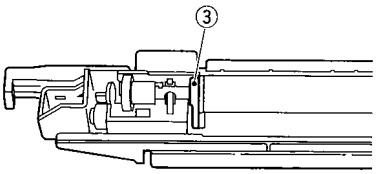


Figure 4-506

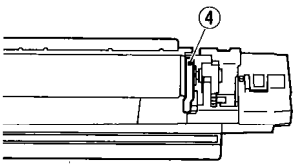
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3) Remove the arms front ③ and rear ④.



(front)

Figure 4-507



(rear)

Figure 4-508

4) Remove the transfer roller ⑤ by lifting it.

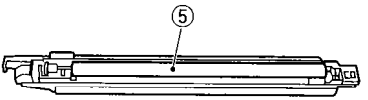


Figure 4-509

Caution:

Do not touch the surface of the roller.
Do not soil the surface of the roller.

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VI. DEVELOPING SYSTEM

1. Removing the Developing Assembly

1) Open the copier front cover.
2) Remove the connector cover ①.

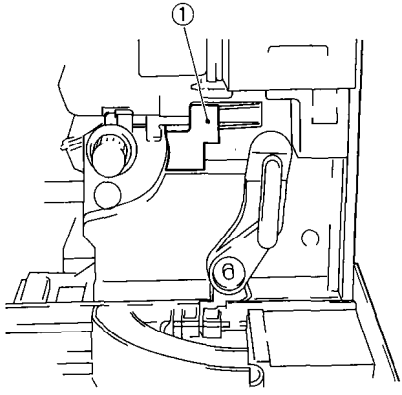


Figure 4-601

3) Remove J34 ②.
4) Turn the locking lever ③ counterclockwise to release.
5) Pull out the developing assembly ⑤ slowly to the front.

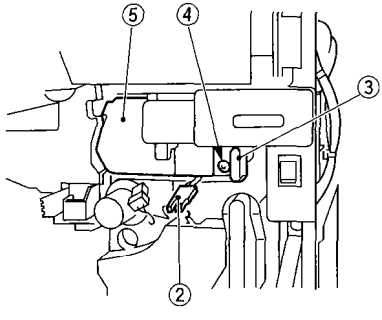


Figure 4-602

2. Removing the Blade

1) Remove the developing assembly from the copier.
2) Remove the two screws ①, and remove the developing assembly cover ②.

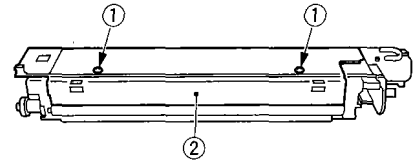


Figure 4-603

3) Place a newspaper on the floor or a desk, and pour out the toner from the developing assembly.
4) Remove the two screws ③, and remove the *blade ④ together with the mount.*

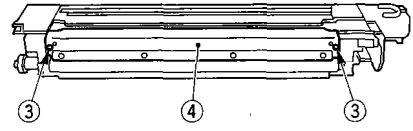


Figure 4-604

Caution:
The blade must be mounted with high accuracy. Do not remove it on its own in the field. Rather, remove it together with its mount.

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3. Removing the Magnetic Seal (developing cylinder)

1) Remove the developing assembly from the copier.
2) Remove the blade.

Caution:
The blade must be mounted with high accuracy. Do not remove it on its own in the field. Rather, remove it together with its mount.

3) Remove the screw ①, and remove the front cover ②.

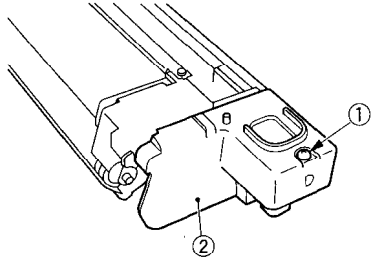


Figure 4-605

4) Remove the screw ③, and remove the electrode positioning plate ④.

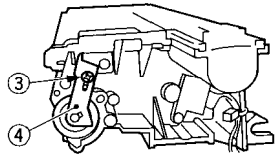


Figure 4-606

5) Remove the C-ring and the two screws; then, remove the butting roll ⑤ and the roll case ⑥.

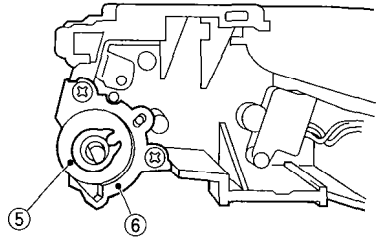


Figure 4-607

6) Remove the two screws ⑦, and remove the gear mount ⑧.

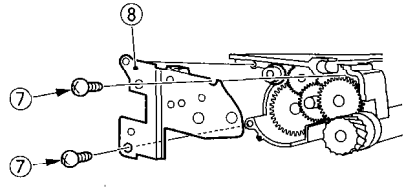


Figure 4-608

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7) Remove the two E-rings, and remove the gear ⑨ and the gear ⑩.
Remove the two screws, and remove the butting roll ⑪ and the roll case ⑫.

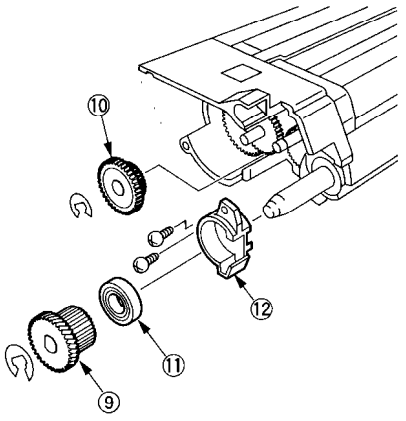


Figure 4-609

8) Remove the developing cylinder ⑬.

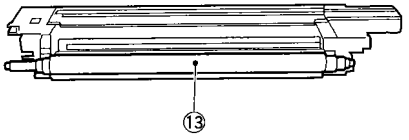


Figure 4-610

9) Remove the magnetic seal ⑭ (both ends).

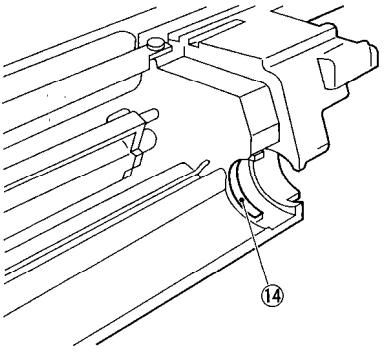


Figure 4-611

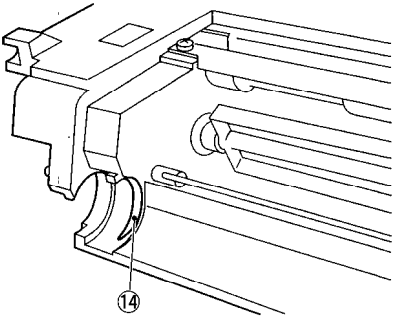


Figure 4-612

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4. Installing the Magnetic Seal and the Blade

1) Clean the contact face on the magnetic seal with alcohol.
2) Attach the magnetic seal as shown. (Pay attention; the magnetic seal is different in shape between front and rear.)
   Check to make sure that the magnetic seal and the case are in contact.

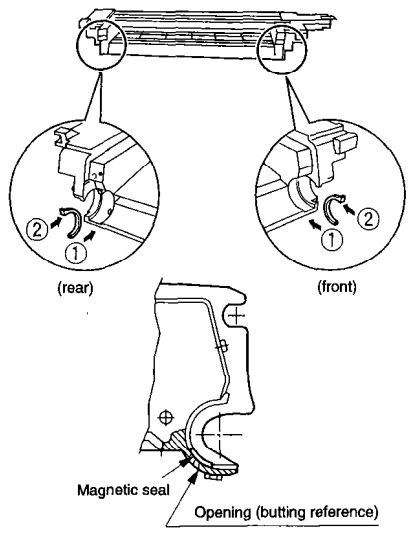
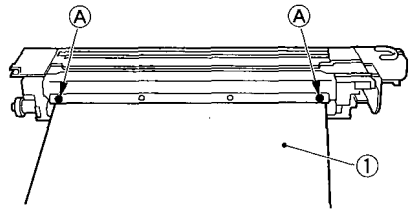


Figure 4-613

3) Install all parts except the blade and the developing assembly cover.
4) While butting the blade mount against the developing assembly, fix it in place with two screws.
   When installing the blade, place paper ① on the developing cylinder first to protect the cylinder. (Tighten the screw while pushing on section A.)



Reference:

S-B is adjusted to 230 ±30 µm.

Figure 4-614

5. Installing the Electrode Positioning Plate

Install the electrode positioning plate while orienting it as shown in Figure 4-615.

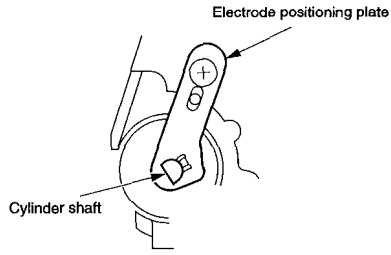


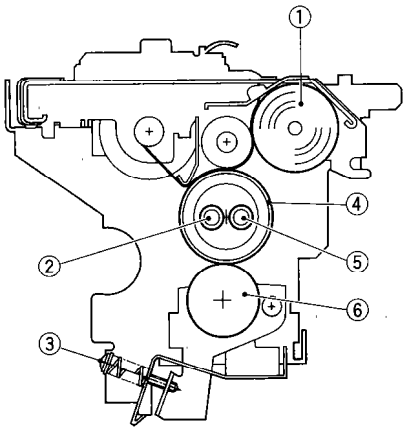
Figure 4-615

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VII. FIXING SYSTEM

A. Fixing Assembly

1. Construction



① Fixing web
② Sub heater
③ Pressure adjusting screw
④ Upper fixing roller
⑤ Main heater
⑥ Lower fixing roller

Figure 4-701

2. Removing the Fixing Assembly

1) Open the copier's front cover.
2) Remove the screw, and remove the fixing assembly knob ①.

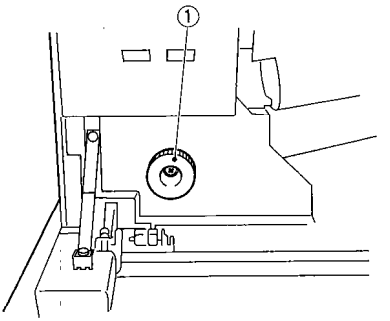


Figure 4-702

3) Open the delivery assembly.
4) Remove the screw ②, and remove the connector cover ③.

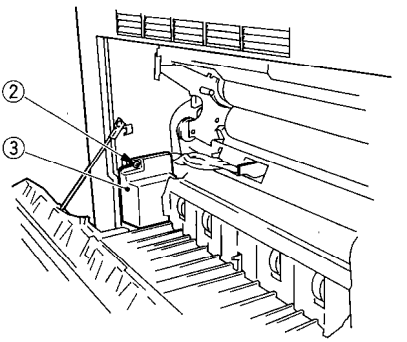


Figure 4-703

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5) Disconnect J3 ③, J76 ④, and J77 ⑤.

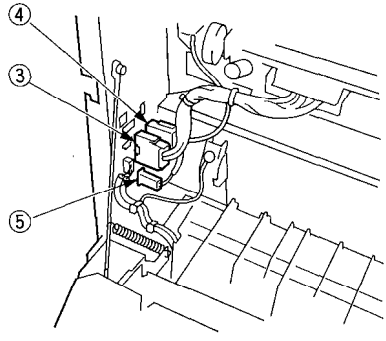


Figure 4-704

6) Remove the two screws ⑥, and remove the fixing assembly ⑦ in the direction of delivery. At this time, take care not to damage the delivery separation claw.

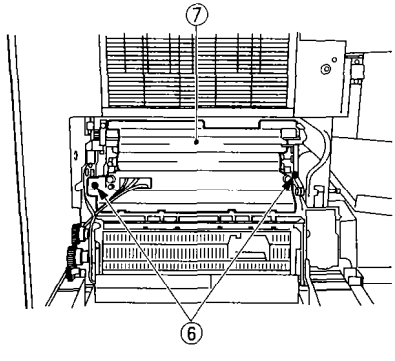


Figure 4-705

3. Removing the Fixing Web

1) Remove the fixing assembly from the copier.
2) Remove the two screws ①, and remove the fixing cleaner assembly ②.

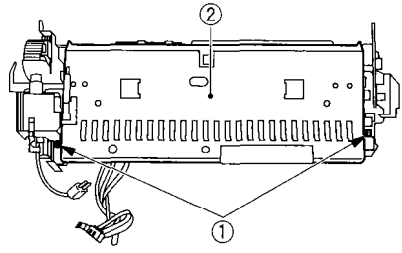


Figure 4-706

3) Insert a flat-blade screwdriver ③ into the stop plate ④; then, release the pressure on the fixing web.

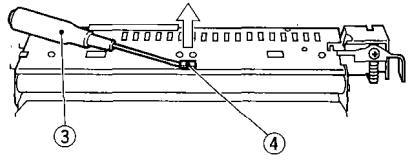


Figure 4-707

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4) Turn the web setting shaft ⑤ of the fixing cleaner assembly clockwise, and remove the fixing web ⑥.

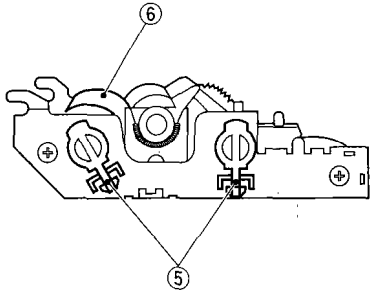


Figure 4-708

4. Installing the Fixing Web

The fixing web consists of a feeding shaft, take-up shaft, and web constructed as a single entity (service part). Install the fixing web by reversing the steps used to remove it with the following in mind:

- Wind the web two to three times around the web take-up shaft.
  At this time, check to make sure that the area that will come into contact with the roller is impregnated with oil.

Caution:

Check to make sure that the fixing web is not wound askew or is free from slack and wrinkling.

- After installing the fixing web, insert a flat-blade screwdriver in the fixing web drive shaft, and turn it counterclockwise until the web is free of slack.

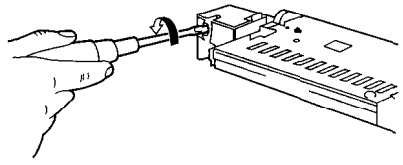


Figure 4-709

Reference:

The fixing cleaner assembly is located above the fixing assembly and is used to clean the surface of the upper roller by keeping the web impregnated with silicone oil against the roller. The web is 15 m long, and is given a marking at a point 2.5 m from its end.

Caution:

If you have replaced the fixing web, be sure to reset the reading of 'WEB' in counter mode (service mode) to '0'.

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5. Removing the Fixing Heater

1) Remove the fixing assembly from the copier.
2) Remove the two screws ①, and remove the fixing cleaner assembly ②.

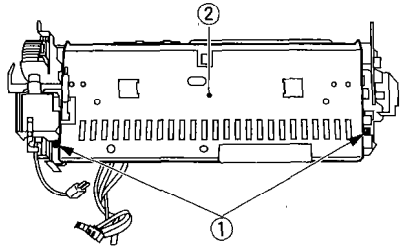


Figure 4-710

3) Remove the cord cover ③ from the thermal switch assembly.

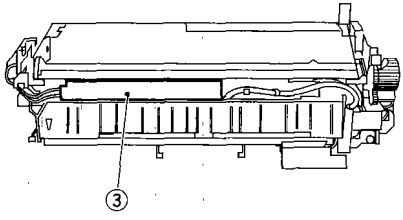


Figure 4-711

4) Pull out the two fastons ④ of the heater (left when viewing the thermal switch).

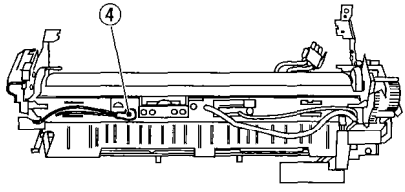


Figure 4-712

5) Turn over the fixing assembly, and remove the cord cover ⑤ from the base of the fixing assembly.

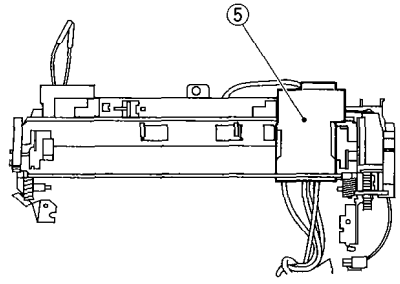


Figure 4-713

6) Pull out the faston ⑥ from the bottom of the fixing assembly.
7) Remove the screw ⑦, and remove the round terminal ⑧.

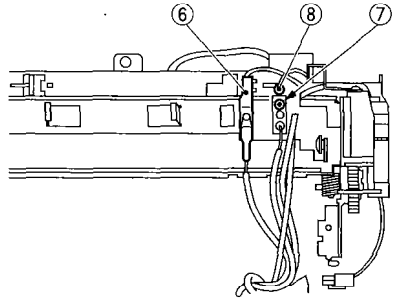


Figure 4-714

8) Remove the screw ⑨, and remove the two cord covers ⑩.

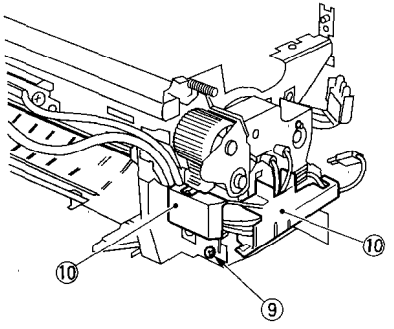


Figure 4-715

9) Remove the screw ⑪, and remove the cord cover ⑫ from the front.

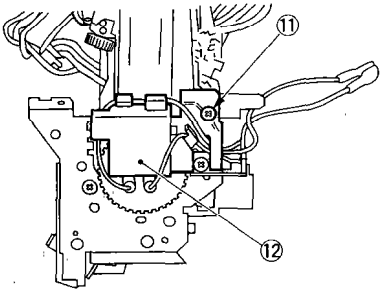


Figure 4-716

10) Remove the screw ⑬, and remove the heater mount (front) ⑭.

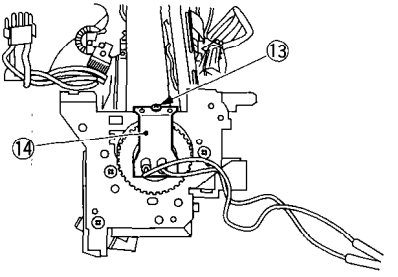


Figure 4-717

11) Remove the two screws ⑮, and remove the plate ⑰ and the heater mount (rear) ⑯.

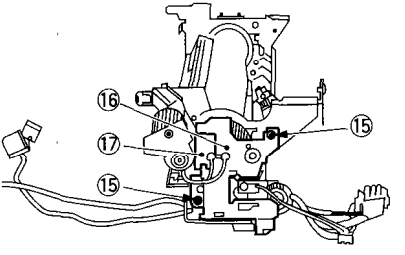


Figure 4-718

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12) Pull out the two fixing heaters ⑰ slowly to the front.

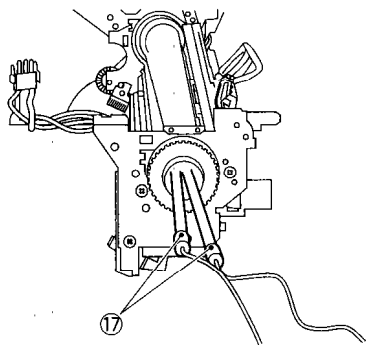


Figure 4-719

6. Removing the Fixing Roller

1) Remove the fixing assembly from the copier.
2) Remove the fixing cleaner assembly.
3) Remove the fixing heater.
4) Remove the screw, and remove the thermistor mount ②.
5) Remove the two screws ③, and remove the thermal switch mount ④.
6) Remove the paper guide ⑤ from the fixing assembly.

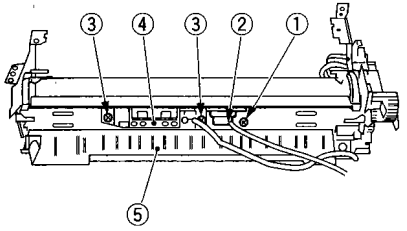


Figure 4-720

7) Remove the C-ring ⑥ and the gear ⑦ at the front.

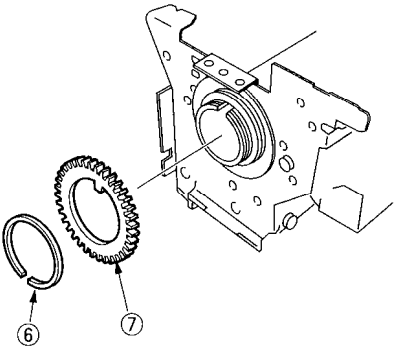


Figure 4-721

8) Remove the C-ring ⑧, varistor ring ⑨, and gear ⑩ at the rear.

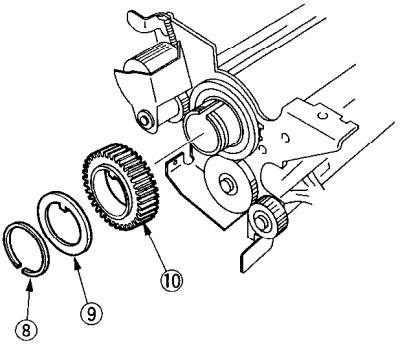


Figure 4-722

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9) Remove the two screws from the lower stay ⑪; then, fit them in the screw hole ⑬ (both sides), and release the lower roller.

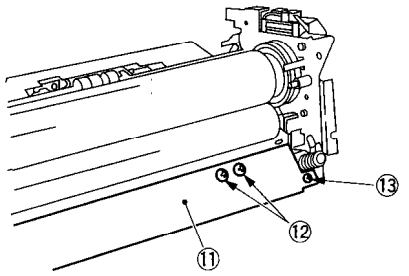


Figure 4-723

10) Remove the screw ⑭.
11) Remove the bearing ⑮ and the insulating bush ⑯.

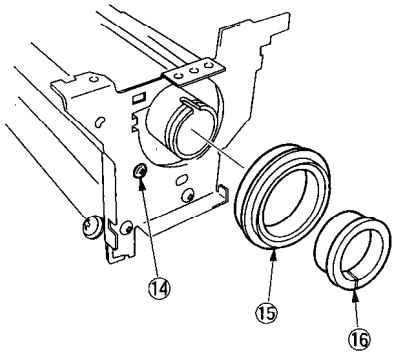


Figure 4-724

12) Pull out the upper fixing roller ⑰ to the front.

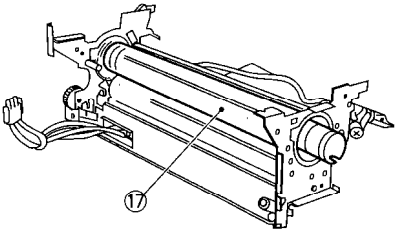


Figure 4-725

13) Lift the lower fixing roller ⑱ together with the bearing.

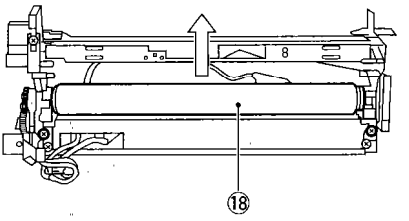


Figure 4-726

7. Installing the Upper Fixing Roller and the Heater

a. Points to Note When Installing the Upper Fixing Roller

① If possible, wrap the roller in copy paper to protect its surface against dirt and scratches.

② Orient the insulting bush as shown.

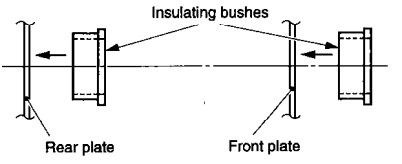


Figure 4-727

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③ Orient the upper fixing roller so that its side with the longer bushing A is toward the rear.

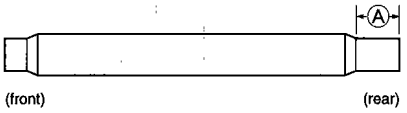


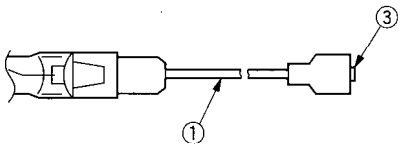
Figure 4-728

b. Points to Note When Installing the Heater

① Do not touch the surface of the heater.

② For the sub heater, one of the terminals of the lead wires ① is a round terminal ②. For the main heater, both sides are fastons.

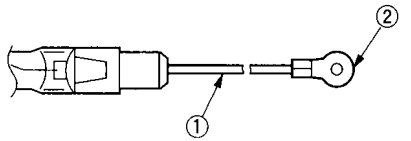
<Main Heater>



The side with the longer lead wire ① is toward the front of the copier.

Figure 4-729

<Sub Heater>



The round terminal is toward the rear. The faston is toward the front.

Figure 4-730

③ Insert the main heater on the right side (pick-up side) and the sub heater on the left side (delivery side) while viewing the fixing assembly from the front of the fixing assembly.

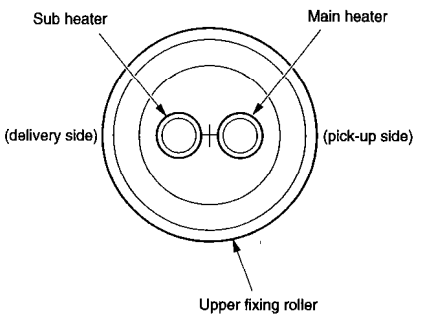


Figure 4-731

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8. Adjusting the Nip (tightening the pressure adjusting nut)

The nip is correct if it is as indicated in Table 4-701; otherwise, adjust it by turning the bolt.

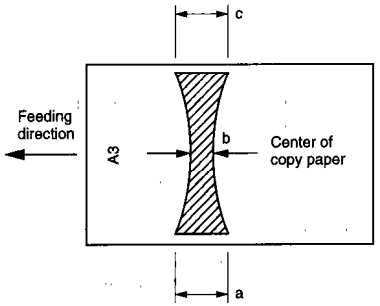


Figure 4-732

Note:
a and c are points 10 mm from both edges of copy paper.

Dimension	Measurement*	
b	Tracing paper (SM-1); 64/80g paper	5.6 ±0.3 mm
l a - c l	0.5 mm or less	

Table 4-701

a. Measuring the Nip

Wait for 15 min after the copier ends warm-up; then, make 20 copies before taking measurements.

1) Place A43 paper on the multifeeder.
2) Open the copyboard cover.
3) Select 'NIP' in nip measurement mode of service mode (*4*).
4) Press the OK key and then the Copy Start key to start the copier.
   The multifeeder picks up the paper, allowing you to take measurements as shown in Figure 4-732. (The paper will then be discharged.)

Reference:
The paper will be stopped between the fixing rollers and then discharged about 10 sec later.

5) Measure the nip.

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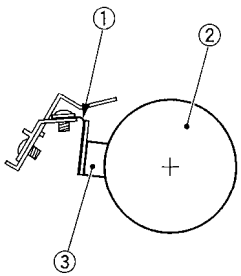
9. Installing the Thermistor

Check to make sure that the detecting face of the thermistor is in even contact with the upper fixing roller.

In addition, make sure that the lead wire from the thermistor is not forced taut.

Reference:

You nee not adjust the position of the thermistor. If the contact is not even, suspect deformation of the thermistor spring.



① Thermistor spring ③ Thermistor
② Upper fixing roller

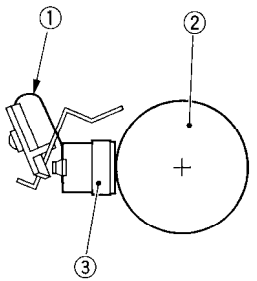
Figure 4-733

10. Installing the Thermal Switch

Check to make sure that the detecting face of the thermal switch is in even contact with the upper fixing roller.

Reference:

You need not adjust the position of the thermal switch. If the contact is not even, suspect deformation of the thermal switch spring.



① Thermal switch spring ③ Thermal switch
② Upper fixing roller

Figure 4-734

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11. Position of the Paper Guide

The paper guide is positioned by the paper guide mount.

Therefore, you need not adjust its position when installing the paper guide.

Caution:

Do not loosen the screw on the paper guide; you will have to adjust the position of the paper guide if you removed the paper guide. If you loosened the screw for some reason, be sure to adjust the position with reference to the notch on the fixing assembly mount.

12. Positioning the Web Drive Solenoid

Install the solenoid so that the solenoid arm ② butts against a when the plunger ① of the web drive solenoid is pushed by ⓐ finger.

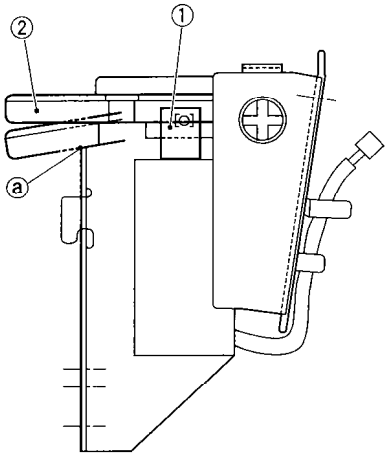


Figure 4-735

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VIII. ELECTRICAL SYSTEM

A. DC Controller PCB

1. Removing the DC Controller PCB

1) Remove the connector of the DC controller PCB.
2) Remove the two screws, and remove the DC controller PCB.

Caution:

The DC controller PCB is equipped with a battery (BAT101). Keep the following points in mind, as shorting both terminals of the battery will lead to flaming of the PCB:

2. Points to Note When Replacing the DC Controller PCB

- When sending the DC controller PCB to a workshop or the factory, put it in a conducting bag keeping it intact with its mount. Use a conducting bag with a transparent side through which the face of the DC controller shows through.
- Make the appropriate adjustments and settings in service mode after replacement.
- Enter the settings (in service mode) recorded on the service label attached behind the front door and the drum label attached to the drum unit.

B. Composite Power Supply PCB

1. Removing the Composite Power Supply PCB

1) Remove the DC controller PCB. (See A. "DC Controller PCB.")
2) Disconnect all connectors from the composite power supply PCB.
3) Remove the two screws, and remove the composite power supply PCB together with its mount.

Caution:

When drawing out the mount to the front, take care so that it will not come into contact with the main motor drive belt. Further, do not hold the heat-radiating plate.

2. Points to Note When Replacing the Composite Power Supply PCB

If you have replaced the composite power supply PCB, enter the settings recorded on the label on the composite power supply PCB in service mode (*3*):

- Items to Enter
  PWR_OFST
  ATVC_STD

C. Points to Note When Handling the Composite Power Supply PCB and the Options Power Supply PCB

- The capacitors on some PCBs may hold charges even when the copier's power is off.
  Take care not to short both terminals of any capacitor whenever you have removed the PCB.

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I. SELECTING THE SITE

Make the following considerations when selecting the site; if possible, visit the user's before the delivery of the copier:

A. There must be a power outlet which may be used exclusively for the copier (rating ±10%).
B. The temperature must be 7.5° to 32.5°C, and the humidity must be 5% to 85%. In particular, avoid areas near a water faucet, water boiler, humidifier, or refrigerator.
C. Avoid areas near a source of fire and areas subject to dust or ammonium gas or direct rays of the sun. (As necessary, provide curtains.)
D. The room must be well ventilated.
E. The floor must be level so that the feet of the copier will remain in contact and the copier will be level.
F. There must be adequate space so that the copier will be at least 10 cm away from any wall for work.

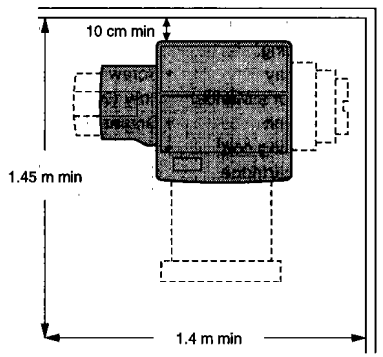


Figure 5-101

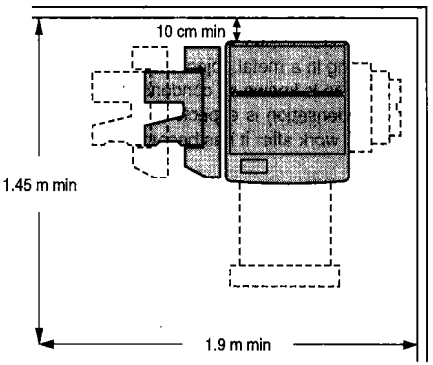


Figure 5-102 (with sorter installed)

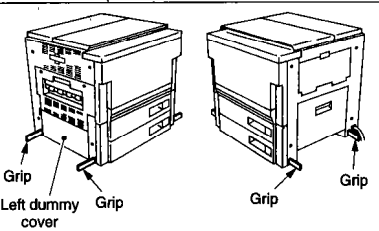
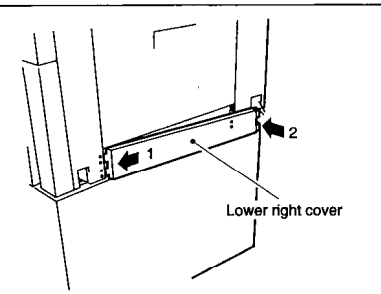
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II. UNPACKING AND INSTALLATION

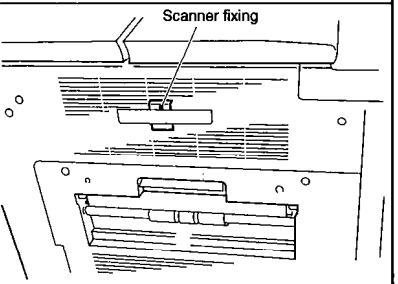
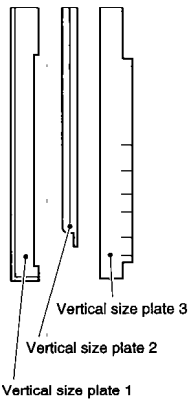
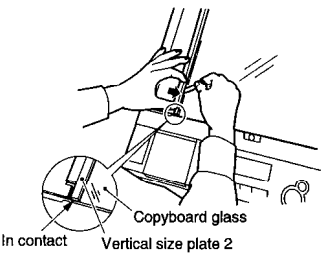
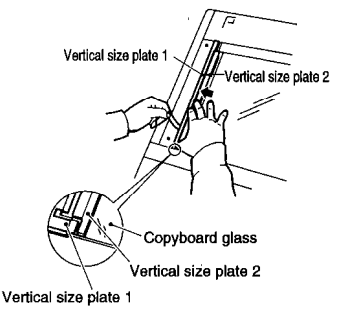
Bringing in a metal object from a cold to warm place can cause droplets of water on its surface. This phenomenon is known as condensation, and copiers subject to condensation can generate blank copies.

If condensation is expected, leave the copier without unpacking it for 1 hour or more, and start the installation work after it has become used to the room temperature.

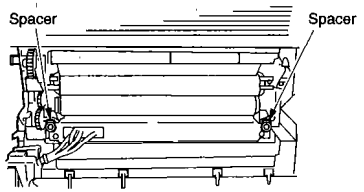
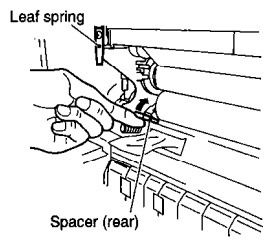
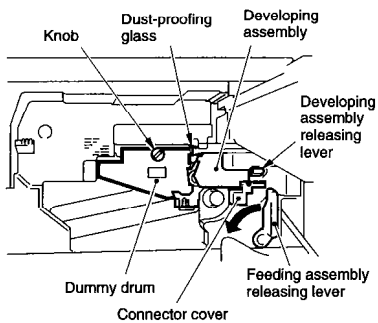
A. Unpacking and Removing the Metal Fixings

Step	Work	Remarks
1	Unpack the copier.	Check to make sure that two cassettes are set in the copier.
2	Remove the plastic cover; then, holding the grips of the copier, place the copier on the pedestal. (Be sure to work in a group of three.) If you are placing the copier on a cassette pedestal or a cassette pedestal with a duplexing unit, refer to its Installation Procedure.	
3	Open the cardboard box, and take out the parts and materials.	Check to make sure that none of the following is missing: • Copy tray • Operator's Manual • Drum unit • Grounding cord • Toner cartridge • Lower right cover • Screw for original tray (2 pcs.) • Original tray • Vertical size plate (3 pcs. in a set) • Cassette size label
4	Remove all tape from the outside of the copier. Slide out the cassettes, and remove the cushioning material from the inside; then, slide in the cassettes.	
5	If you are not installing a cassette pedestal or a cassette pedestal with a duplexing unit, install the lower right cover. If you are installing any of the above pedestals, you will not need the lower right cover.	

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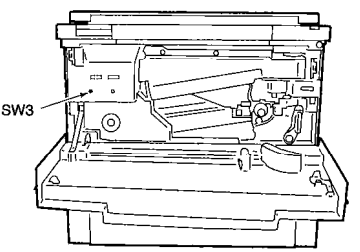
Step	Work	Remarks
6	Remove the tape from the scanner fixing on the outside of the left cover; then, slide the fixing to the right, and pull it to the front to remove. • You may store away the fixing for possible relocation of the copier.	
7	Open the copyboard cover, and remove the protection paper. Install the vertical size plate to the copyboard glass. • If you are installing a document feeder, you need not install the vertical size plate. (The size plate which comes with the document feeder will be used.) 	1) Place the vertical size plate 2 butting it against the left edge of the copyboard glass, and set it as shown. While holding the vertical size plate 2 in place, peel the tape from the back, and attach it.  2) Attach the vertical size plate 1 to the upper left stay cover as shown. (Peel the tape from the back while forcing the plate against the upper stay cover.)  3) Attach the vertical size plate 3 over the two plates you have attached.

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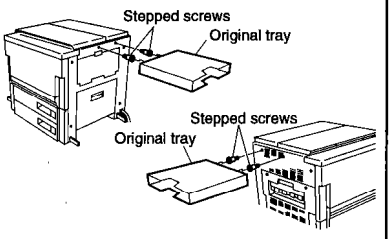
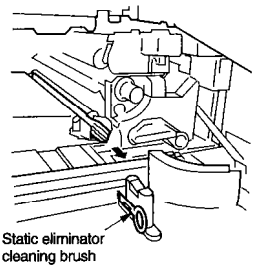
Step	Work	Remarks
8	Open the front cover, and open the delivery assembly.	
9	Push up the spacer (one each at front and rear) of the fixing roller in the direction of the arrow until a click is heard.	
10	Remove the spacer. • You will not need the spacer.	**Caution:** When removing the spacer from the rear, pay attention to the leaf spring of the fixing unit. 
11	Close the delivery assembly.	
12	Remove the connector cover, and release the developing assembly.	
13	Open the hopper to the front, release the feeding assembly, and remove the knob; then, remove the dummy drum from the copier. (You will use the knob later.) Thereafter, put the hopper back into its original position.	
14	Disconnect the connector, and remove the developing assembly. Check to make sure that the developing cylinder is free of scratches or dirt.	
15	Install the developing assembly, and connect the connector.	
16	Lock the developing assembly, and install the connector cover.	
17	Check to make sure that the feeding assembly remains released.	

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B. Turning On the Power/Starting Up the Copier

Step	Work	Remarks
1	Connect the power plug to the power outlet.	**Caution:** Make sure of the following: • The power outlet provides the rated voltage ±10%.
2	Using the door switch actuator, turn on the door switch, and shift the power switch to 'I'.	Check to make sure that the Add Paper indicator turns on. • Press the keys on the keypad and the Clear key to make sure that correct copy counts are indicated.
3	Supply the hopper with toner.	
4	Set the hopper in the copier.	**Caution:** If the hopper is not set properly, the developing assembly will not be supplied with toner, possibly locking the hopper motor.
5	Press the service mode switch (SW3) with a hex key. • Go to the 3rd page of 'FUNCTION' in service mode (*4*), and press 'TONER-S' and 'OK' in sequence.	The copier will operate for 6 min. during which the developing assembly is supplied with toner. Perform steps 7) and 8) during this period. **Caution:** Do not turn off the power or pull out the door switch actuator while the copier is in operation. 

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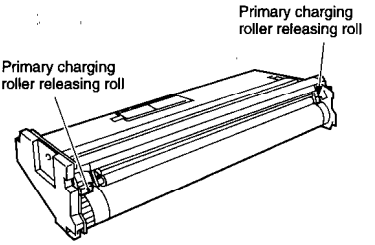
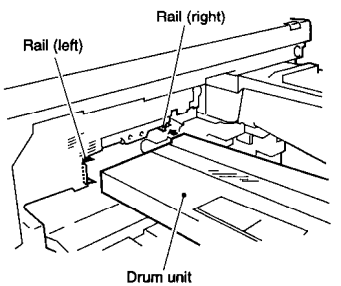
Step	Work	Remarks
6	Fit the stepped screws as shown, and install the original tray.	You may install the original tray on either left or right. 
7	Install the copy tray to the delivery assembly.	
8	Pull out the static eliminator, and clean it with the static eliminator cleaning brush; then, put the brush back into its original position.	
9	After performing step 6, remove the connector cover, and release the developing assembly.	
10	Open the hopper.	
11	Install the drum unit.	See C. "Installing the Drum Unit."
12	Select 'APVC-MR' in service mode 'FUNCTION 03' (*4*), and press the OK key.	The copier will execute multiple initial rotation and measures APVC. Reference: If you fail to execute 'APVC_MR' after installing the drum unit, the primary charging voltage and the scanning lamp activation voltage will not be controlled correctly.
13	Press the ↻ key once, enter service mode (ADJSUT 02; *3*), and select 'PRIMARY' and 'IP_OFST'; then, enter the values recorded on the drum label attached to the front of the drum unit. Drum Label PRIMARY xx IP_OFST yy	Entering the Value Select 'ADJUST' (*3*) in service mode, and press '33' once; then, select the screen for 'ADJUST 02' (*3*). Press 'PRIMARY' on the screen to highlight. Using the keypad, ▽/△ key, and +/– key, set XX. PRIMARY : 00 << XX Press the OK key to accept the value. PRIMARY : XX << XX Then, press 'IP_OFST', and enter the appropriate value in the same way, and press the OK key.

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Step	Work	Remarks
15	Make settings in user mode and under 'OPTION' in service mode to suit the needs of the user.	Use *5* in service mode for 'OPTION'.
16	Press the Reset key twice to end service mode. Turn the power switch OFF then ON.	
17	Set the hopper and the feeding assembly, lock the developing assembly, and install the connector cover.	

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C. Installing the Drum Unit

Step	Work	Remarks
1	Open the drum unit, and remove the light-blocking sheet.	
2	Remove the primary charging roller releasing roll.	 Take care so as not to damage the surface of the drum and to avoid contact with the primary charging roller.
3	Set the drum unit to the copier, and fix it in place using the knob used to keep the dummy drum in place.	 Slide the drum unit straight into the copier along the rail.
4	Fill out the label which comes with the drum unit, and attach the label to the cover of the drum unit.	日付 date date Datum / カウンター counter compteur Zähler / 備考 notes note Notiz

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D. Checking the Images and the Operations

Step	Work	Remarks
1	Remove the door switch actuator, and close the front door.	
2	Set the cassette size to suit the needs of the user. First, adjust the side guide plate to suit the appropriate paper size; then, place copy paper, and adjust the rear end control plate to match the trailing edge of the paper.	
3	Remove the cassette size plate from each cassette, and attach the size label of the appropriate paper size to the size plate. Put back the size plates.	
4	Set the cassettes in the copier.	• Check to make sure that the Add Paper indicator turns off. • Press keys other than the Copy Start key on the control panel to make sure that the operations are correct.
5	Set the Test Sheet on the copyboard, and check the images.	• Check that there is no abnormal noise. • Check the copy image at each default ratio. • Check that as many copies as specified are made normally. • If the copy image is not normal, perform the "Image Adjustment Basic Procedure."
6	Make copies using manual mode.	Check to make sure that copying operations are normal.
7	Check the external covers for scratches and deformations.	
8	Clean the area around the copier.	
9	Move the copier to the site of installation.	Check to make sure that the copier is level.
10	Fill out the service sheet.	

Install the options as necessary after performing the foregoing installation work.

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■ Handling the Photosensitive Drum After Installation

The photosensitive drum is highly susceptible to light, and exposure to even room lighting can lead to white spots or black bands. Take note of the following when handling it:

- Try to remove any jams within 5 min.
- If you have to remove the drum unit from the machine for servicing, wrap it in the light-blocking sheet (if not available, new copy paper), and keep the drum in a dark place.

Do not touch the photosensitive drum or the surface of the primary charging roller.

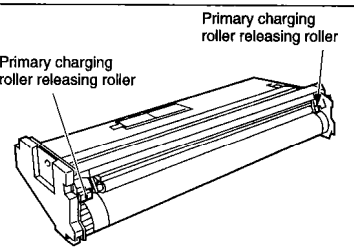
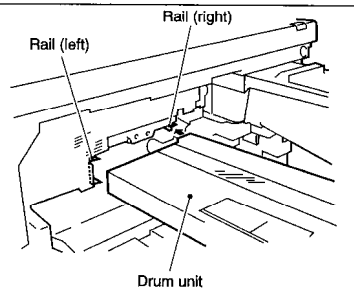
If the surface of the photosensitive drum is soiled, wipe it with a flannel cloth coated with toner. (Do not use paper, lint-free or otherwise.)

Do not dry-wipe or do not use solvent.

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III. REPLACING THE DRUM UNIT

Go through the following steps when replacing the drum unit.

Step	work	Remarks
1	Turn off the power, open the front door, and remove the drum unit.	
2	Unpack the drum unit, and remove the light-blocking sheet.	
3	Remove the primary charging roller releasing roll.	 Take care not to damage the drum surface or to avoid contact with the primary charging roller.
4	Set the drum unit in the copier, and fix it in place using the knob used to keep the old drum unit in place.	 Slide the drum unit straight into the copier along the rail.
5	Fill out the label, and attach the label to the drum unit cover.	日付 date / date Datum; カウンター counter / compteur Zähler; 備考 notes / note Notiz
6	Turn on the door switch using the door switch actuator.	

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Step	Work	Remarks
7	When warm-up is over, push the service mode switch (SW501) with a hex key. • Start service mode (*3*), and select 'PRIMARY' and 'IP_OFST'; then, enter the value recorded on the drum label attached to the front of the drum unit. Drum Label PRIMARY xx IP_OFST yy	Entering the Value Select the screen for 'ADJUST 02' (*3*). Press 'PRIMARY' on the screen to highlight. Using the keypad, ▽ / △ key, and +/– key, set XX. PRIMARY : 00 << XX Press the OK key to accept the value. PRIMARY : XX << XX Then, press 'IP_OFST', and enter the appropriate value in the same way, and press the OK key.
8	Select 'APVC_MR' in service mode (*4*), and press the OK key.	The copier will perform multiple initial rotation and measures APVC. • If you fail to perform 'APVC_MR' after replacing the drum unit, the primary charging voltage and the scanning lamp activation voltage will not be controlled correctly.
9	Remove the door switch actuator, and close the front door.	

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IV. RELOCATING THE COPIER

Perform the steps that follow before relocating the copier by truck or other means of transportation.

Step	Work	Checks	Remarks
1	Move the lens to Direct position.		What is referred to as Direct position is where the lens is when warm-up ends after power-on.
2	Remove the drum unit.	Put the drum unit in a box for transportation.	
3	Fix the scanner in place.		
4	Tape the charging assembly and feeding assembly releasing levers in place to avoid shifting by vibration.		
5	Tape the front door and the delivery assembly in place.		
6	Place A3 copy paper on the copyboard glass, and tape the copyboard cover in place.		

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V. INSTALLING THE CONTROL CARD V

1) Turn off the copier's power switch, and open the front door.
2) Remove the control panel. (See p. 4-2.)
3) Remove the control card slot face plate ①.
4) Remove the screw ② from the face plate.

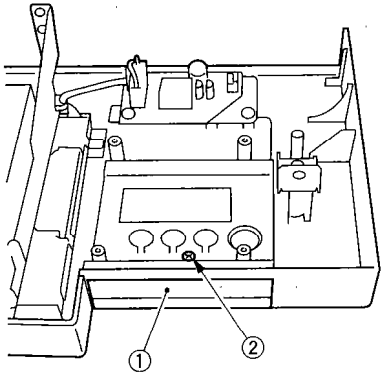


Figure 5-501

5) Remove the protection sheet from the transparent sheet.
6) Place the transparent sheet ⑨ on the back of the indicator assembly.

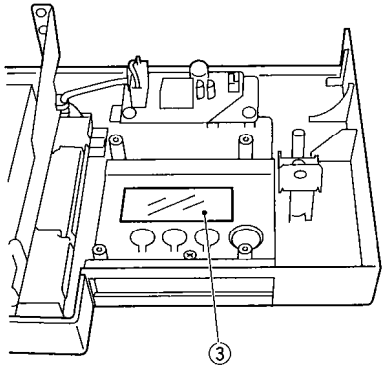


Figure 5-502

7) Remove the protection sheet from the indicator assembly of the Control Card V.
8) Using four mounting screws ④ (accessory), fix the Control Card V ⑤ to the control panel. (Fix the Control Card V in place where a control card ⑥ may be slid in and out smoothly.)

Caution:

Be sure to lead the harness and grounding wire ⑦ of the Control Card V under the Control Card V. (Otherwise, they may come in contract with the scanner cable.)

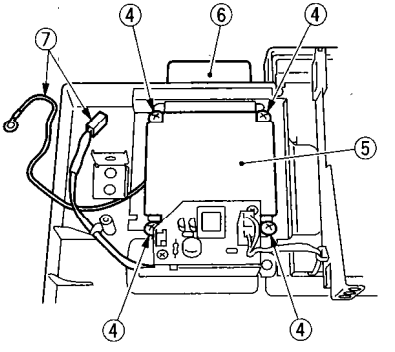


Figure 5-503

Further, check that the connector ⑧ for the printer is centered over the hole.

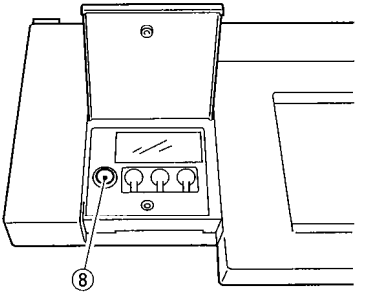


Figure 5-504

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9) Attach the nameplate of the Control Card V to the copier's control panel.

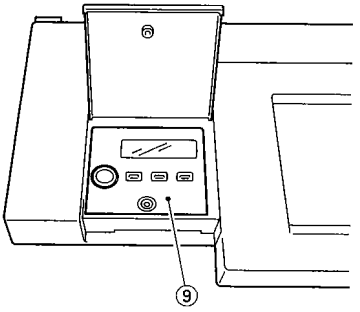


Figure 5-505

10) Install the control panel. Check to make sure that the scanner cable is not in contact with the harness.
11) Fix the grounding wire ⑩ of the Control Card V in place on the control panel mount ⑫ using a screw (accessory).
Disconnect the shorting connector ⑬, and connect the 4P connector of the Control Card V.

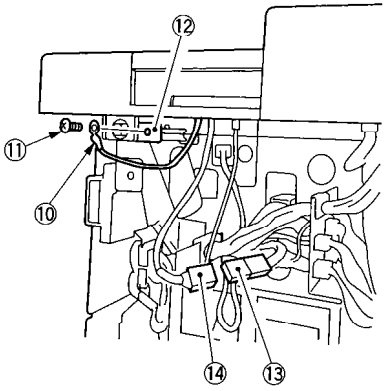


Figure 5-506

12) Turn on the copier's power switch, and check the operation of the Control Card V.

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I. PERIODICALLY REPLACED PARTS

Some of the NP6035's parts must be replaced on a periodical basis to ensure a specific level of performance. Replace them as indicated regardless of the presence/absence of external damage.

(Schedule the replacement so that it coincides with scheduled servicing.)

A. Periodically Replaced Parts

as of March 1996

No.	Parts	Parts No.	Q'ty	Life (copies)	Remarks
1	Static eliminator	FF5-1460-000	1	60,000	
2	Scanner cooling fan filter	FB1-7671-000	1	180,000	Or, 1 yr.

Note:

The above values are estimates only and are subject to change based on future data.

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II. CONSUMABLES AND DURABLES

Some of the NP6035's parts may have to be replaced once or more because of deterioration or damage over the period of warranty. Replace them as necessary.

A. Copier

as of March 1996

No.	Parts			Parts No.	Q'ty	Life (copies)	Remarks
1	Transfer roller			FB3-7050-000	1	120,000	
2	Scanning lamp (100/120 V)			FH7-3320-000	1	120,000	
	Scanning lamp (220/240 V)			FH7-3321-000	1	120,000	
3	Feeding roller			FB1-7061-000	2	120,000	Actual copies made
4	Separation roller			FB1-7060-020	2	120,000	Actual copies made
5	Manual feeding separation pad			FB1-8578-000	1	120,000	Actual copies made
6	Fixing web			FA3-8908-000	1	200,000	
7	Upper fixing roller			FB3-6936-000	1	200,000	
8	Upper fixing separation claw			FB1-7075-000	5	200,000	
9	Lower fixing separation claw			FA2-9037-000	4	200,000	
10	Insulating bush (fixing assembly)			FB1-6823-000	2	200,000	
11	Front/blank exposure lamp PCB			FG5-1178-000	1	200,000	
12	Developing cylinder			FG5-7851-000	1	200,000	
13	Pick-up roller (rear)			FF5-1220-000	2	240,000	Actual copies made
14	Pick-up roller			FF5-1221-000	2	240,000	Actual copies made
15	Fixing heater	Main	100 V	FH7-4350-000	2	300,000	
			120 V	FH7-4352-000	1		
			220/240 V	FH7-4354-000			
		Sub	100 V	FH7-4356-000	1	300,000	
			120 V	FH7-4358-000	1		
			220/240 V	FH7-4360-000			
16	Thermistor			FH7-7285-000	1	300,000	
17	Lower fixing roller			FB2-7121-000	1	500,000	

Note:

The above values are estimates only and are subject to change based on future data.

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III. SCHEDULED SERVICING

Note:

1. As a rule, perform scheduled servicing every 20,000 copies.
2. Before setting out for a visit, check the service book, and take parts likely to need replacement.

Step	Work	Checks	Remarks
1	Meet the person in charge.	Check the general condition.	
2	Record the counter reading.	Check faulty copies.	
3	Make test copies: Direct, Reduce, Enlarge, page separation.	a. Image density b. Soiling of white background c. Clarity of characters d. Leading edge margin e. Left/right margin f. Fixing, registration, soiling on back g. Abnormal noise h. Counter operation	Standard: 2.0 ±1.0 mm (Direct/one-sided) Standard: 2.5 ±1.5 mm (Direct/one-sided)
4	Clean the static eliminator/feeding assembly.		Clean the static eliminator using the special brush.
5	Clean the fixing/delivery assembly. • Paper guide plate • Separation claw (upper/lower) • Static eliminator brush		Use solvent. Use solvent.
6	Provide scheduled servicing to suit the number of copies made (p. 6-4).		
7	Clean the copyboard cover and the copyboard glass.		
8	Make test copies.		
9	Make sample copies.		
10	Put sample copies in order, and clean up the area around the machine.		
11	Record the final counter reading.		
12	Fill out the service sheet, and report to the person in charge.		

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IV. SCHEDULED SERVICING

A. Copier

Caution :

1. As a rule, provide scheduled servicing every 20,000 copies.
2. Check the service record, and take parts which are likely to call for replacement.

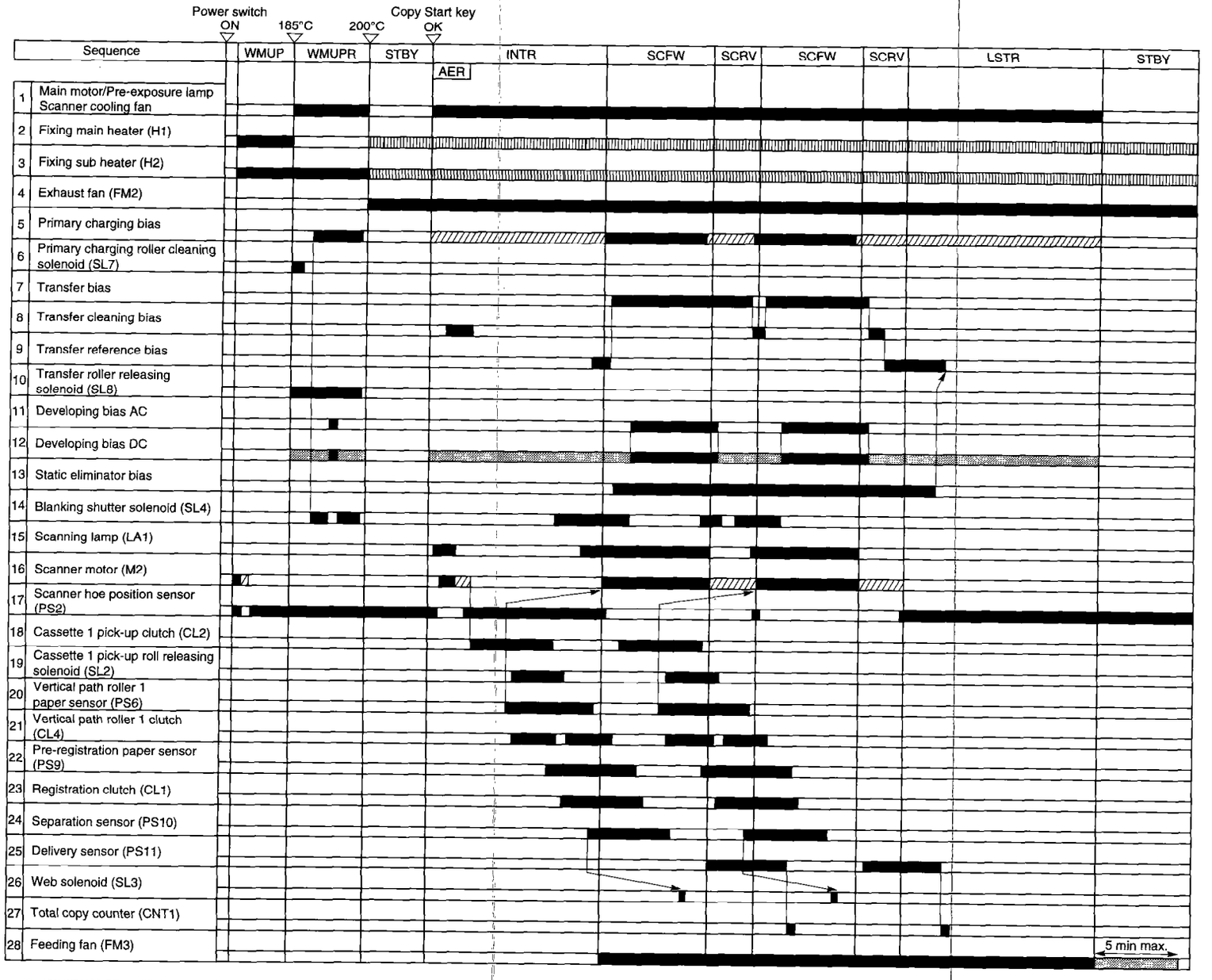
△ : Clean ● : Replace × : Oil □ : Adjust ◎ : Inspect

Item	Part	Intervals				Remarks
		Instal-lation	every 50,000	every 150,000	1 yr.	
External control system	Copyboard glass		△			Use alcohol.
Scanner drive assembly	Scanner rail		×			Use alcohol; then, apply oil.
Feeding assembly	Transfer guide assembly		△			Use a moist cloth.
	Feeding belt		△			
	Feeding assembly mount		△			
Fixing assembly	Upper fixing roller		△			Use cleaning oil.
	Lower fixing roller		△			
	Separation claw (upper, lower)		△			Use solvent.
	Fixing inlet guide		△			
Optical path	Scanner reflecting plate		△			Use a blower brush; if the dirt cannot be removed, use alcohol.
	Scanner side reflecting plate		△			
	No. 1 through No. 6 mirrors		△			
	Lens		△			
	Dust-proofing glass		△			
	Original size detecting unit		△			
	Scanner cooling fan filter			●	●	Replace every 150,000 copies or 1 yr.
Charging assembly	C roller					
	C roller cleaning pad					
	Static eliminator		●			

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A. GENERAL TIMING CHART

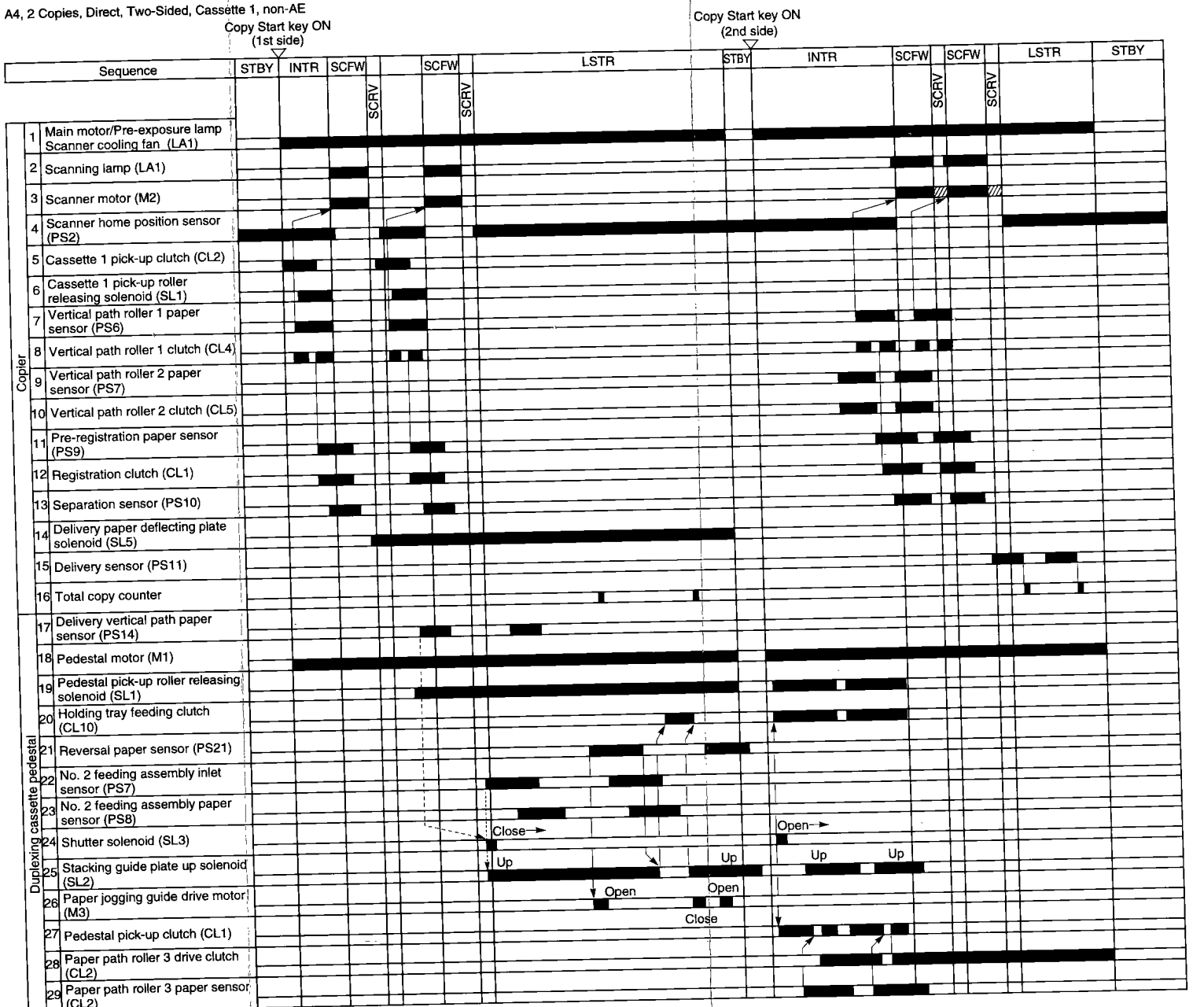
A4, 2 Copies, Direct, One-Sided, Cassette 1



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A4, 2 Copies, Direct, Two-Sided, Cassette 1, non-AE


Copy Start key ON (1st side)
Copy Start key ON (2nd side)
Sequence
STBY
INTR
SCFW
SCRV
LSTR
Copier
Duplexing cassette pedestal
1 Main motor/Pre-exposure lamp Scanner cooling fan (LA1)
2 Scanning lamp (LA1)
3 Scanner motor (M2)
4 Scanner home position sensor (PS2)
5 Cassette 1 pick-up clutch (CL2)
6 Cassette 1 pick-up roller releasing solenoid (SL1)
7 Vertical path roller 1 paper sensor (PS6)
8 Vertical path roller 1 clutch (CL4)
9 Vertical path roller 2 paper sensor (PS7)
10 Vertical path roller 2 clutch (CL5)
11 Pre-registration paper sensor (PS9)
12 Registration clutch (CL1)
13 Separation sensor (PS10)
14 Delivery paper deflecting plate solenoid (SL5)
15 Delivery sensor (PS11)
16 Total copy counter
17 Delivery vertical path paper sensor (PS14)
18 Pedestal motor (M1)
19 Pedestal pick-up roller releasing solenoid (SL1)
20 Holding tray feeding clutch (CL10)
21 Reversal paper sensor (PS21)
22 No. 2 feeding assembly inlet sensor (PS7)
23 No. 2 feeding assembly paper sensor (PS8)
24 Shutter solenoid (SL3)
25 Stacking guide plate up solenoid (SL2)
26 Paper jogging guide drive motor (M3)
27 Pedestal pick-up clutch (CL1)
28 Paper path roller 3 drive clutch (CL2)
29 Paper path roller 3 paper sensor (CL2)
Close
Open
Up
Open
Close
Open
Up
Up
Up

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B. SIGNALS AND ABBREVIATIONS

1. Signals

ACBIAS	AC DEVELOPING BIAS DRIVE command
AE	AE SENSOR OUTPUT signal
AEREF	AE SENSOR REFERENCE signal
APVC-SIG	AUTO PRIMARY VOLTAGE CONTROL signal
B_L_ON	BACK LIGHT ON command
BIASS	DEVELOPING BIAS VOLTAGE DETECTION signal
BLB_A	BLANK MOTOR (BACK) DRIVE PULSE command A
BLB_B	BLANK MOTOR (BACK) DRIVE PULSE command B
BLBHP	BLANK SHUTTER (BACK) HOME POSITION signal
BLF_A	BLANK MOTOR (FRONT) DRIVE PULSE command A
BLF_B	BLANK MOTOR (FRONT) DRIVE PULSE command B
BLFHP	BLANK SHUTTER (FRONT) HOME POSITION signal
BLHLD	BLANK MOTOR HOLD command
BPWM	DEVELOPING BIAS DC COMPONENT DRIVE command
C1LTP	CASSETTE 1 LIFTER POSITION signal
C1PD	CASSETTE 1 PAPER DETECTION signal
C1PW	CASSETTE 1 PAPER WIDTH SIZE signal
C1SZ1	CASSETTE 1 PAPER LENGTH SIZE signal 1
C1SZ2	CASSETTE 1 PAPER LENGTH SIZE signal 2
CBCC	COPYBOARD COVER CLOSED command
CL1D	REGISTRATION ROLLER CLUTCH DRIVE command
CL2D	CASSETTE 1 PICK-UP ROLLER CLUTCH DRIVE command
CL3D	CASSETTE 2 PICK-UP ROLLER CLUTCH DRIVE command
CL4D	VERTICAL PATH ROLLER 1 CLUTCH DRIVE command
CL5D	VERTICAL PATH ROLLER 2 CLUTCH DRIVE command
CLKP	MAIN MOTOR CLOCK signal
CNT1D	TOTAL COUNTER DRIVE command 1
CNT2D	TOTAL COUNTER DRIVE command 2
CNTSL1	COUNTER SOLENIOD 1 DRIVE command
CNTSL2	COUNTER SOLENIOD 2 DRIVE command
CS1	COUNTER DRIVE SWITCHING signal 1
CS2	COUNTER DRIVE SWITCHING signal 2
DS1DT	DOOR SWITCH 1 DETECTION signal
FM1D	SCANNER COLLING (FM1) DRIVE command
FM2D	EXHAUST FAN (FM2) DRIVE command
FM3D	FEEDER FAN (FM4) DRIVE command
HVLIMIT	STATIC ELIMINATOR BIAS LEAKAGE DETECTION signal
HVPWM	HIGHT VOLTAGE TRANSFORMER DRIVE PULSE command
HVTS	TRANSFER BIAS VOLTAGE DETECTION signal
JCTL	STATIC ELIMINATOR BIAS SWITCHING command
LEXA	LENS X MOTOR DRIVE PULSE command A
LEXB	LENS X MOTOR DRIVE PULSE command B
LEXHLD	LENS X MOTOR HOLD command

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LEYA	LENS Y MOTOR DRIVE PULSE command A
LEYB	LENS Y MOTOR DRIVE PULSE command B
LEYHLD	LENS Y MOTOR HOLD command
LFDO	LEFT DOOR OPEN signal
LOCK	MAIN MOTOR LOCK signal
LXHP	LENS X HOME POSITION signal
LYHP	LENS Y HOME OPSITION signal
MPWM	MAIN TRANSFORMER DRIVE PULSE command
M3D	HOPPER MOTOR DRIVE command
M4D	CASSETTE 1 LIFTER MOTOR DRIVE command
M5D	CASSETTE 2 LIFTER MOTOR DRIVE command
MFCL	MULTIFEED ROLLER CLUTCH DRIVE command
MFPD	MULTIFEEDER PAPER DETECTION signal
MFPW	MULTIFEEDER PAPER WIDTH SIZE signal
MHRD	MAIN HEATER DRIVE command
MMD	MAIN MOTOR DRIVE command
MSSRD	MAIN SSR DRIVE COMMAND
PDP1	PAPER DETECTION signal 1
PDP2	PAPER DETECTION signal 2
PDP3	PAPER DETECTION signal 3
PDP4	PAPER DETECTION signal 4
PDP5	PAPER DETECTION signal 5
PDP6	PAPER DETECTION signal 6
PEXP	PRE-CONDITIONING EXPOSURE LAMP LIGHT command
PWOFF	POWER SWITCH OFF command
RDC	RIGHT DOOR OPEN signal
SCDP	SCANNER AT LEADING EDGE POSITION signal
SCFW	SCANNER FORWARD command
SCHP	SCANNER HOME POSITION signal
SCMD	SCANNER MOTOR DRIVE command
SCMHLD	SCANNER MOTOR HOLD command
SCRC0	REPRODUCTION RATIO SELECT command 0
SDRC1	REPRODUCTION RATIO SELECT command 1
SCT1~10	SCANNER MOTOR DRIVE PULSE command
SERVICE	SERVICE MODE SWITCH signal
SHRD	SUB HERTER DRIVE command
SL1D	CASSETTE 1 PICK-UP ROLLER RELEASE SOLENOID DRIVE command
SL2D	CASSETTE 2 PICK-UP ROLLER RELEASE SOLENOID DRIVE command
SL3D	CLEANING BELT SOLENOID DRIVE command
SL4D	BLANK SHUTTER SOLENOID DRIVE command
SL5D	PAPER DEFLECTOR SOLENOID DRIVE command
SL6D	MUTIFEED ROLLER SOLENOID DRIVE command
SL7D	PRIMARY CHARGING ROLLER CLEANING SOLENOID DRIVE command
SL8D	TRANSFER CHARGING ROLLER RELEASE SOLENOID DRIVE command
SSSRD	SUB SSR DRIVE command
SZ1	DOCUMENT SIZE DETECTION signal 1
SZ2	DOCUMENT SIZE DETECTION signal 2
SZ3	DOCUMENT SIZE DETECTION signal 3
SZ0	DOCUMENT SIZE DETECTION signal 0

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T_CC	TRANSFER BIAS (2) DRIVE command
T_FW	TRANSFER BIAS (1) DRIVE command
T_PRTCT	TRANSFER BIAS ERROR DETECTION signal
T_REV	TRANSFER BIAS (3) DRIVE command
TEP	TONER EMPTY signal
TH1	FIXING THERMISTOR signal
TN_OUT	TONER OUT signal
VPDT	VERTICAL PATH PAPER DETECTION signal

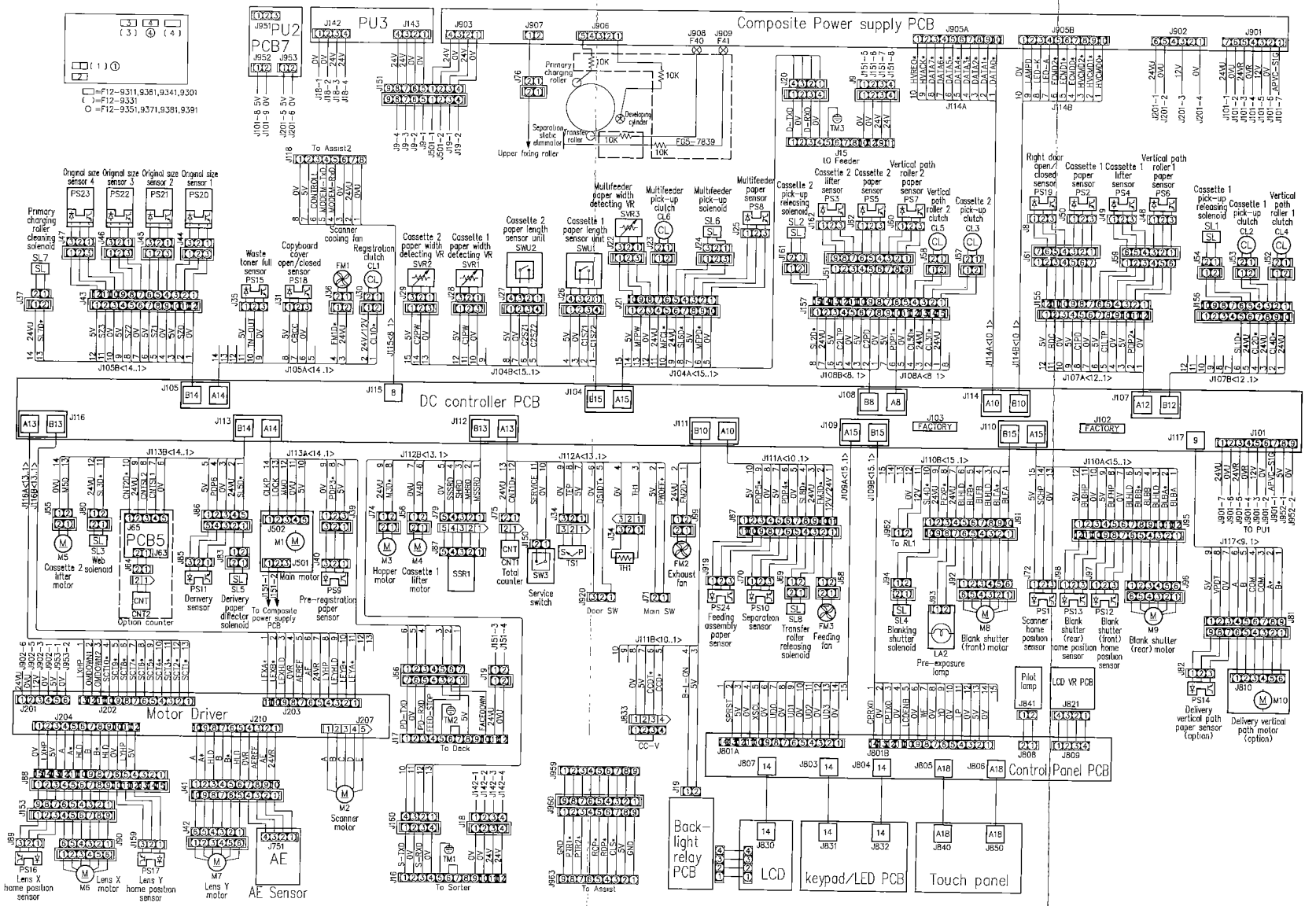
2. Abbreviations

AER	AE ROTATION
FEDR	FEED ROTATION
INTR	INITIAL ROTATION
LSTR	LAST ROTATION
SCFW	SCANNER FORWARD
SCRV	SCANNER REVERSE
STBY	STANDBY
WMUP	WARM UP
WMUPR	WARM UP ROTATION

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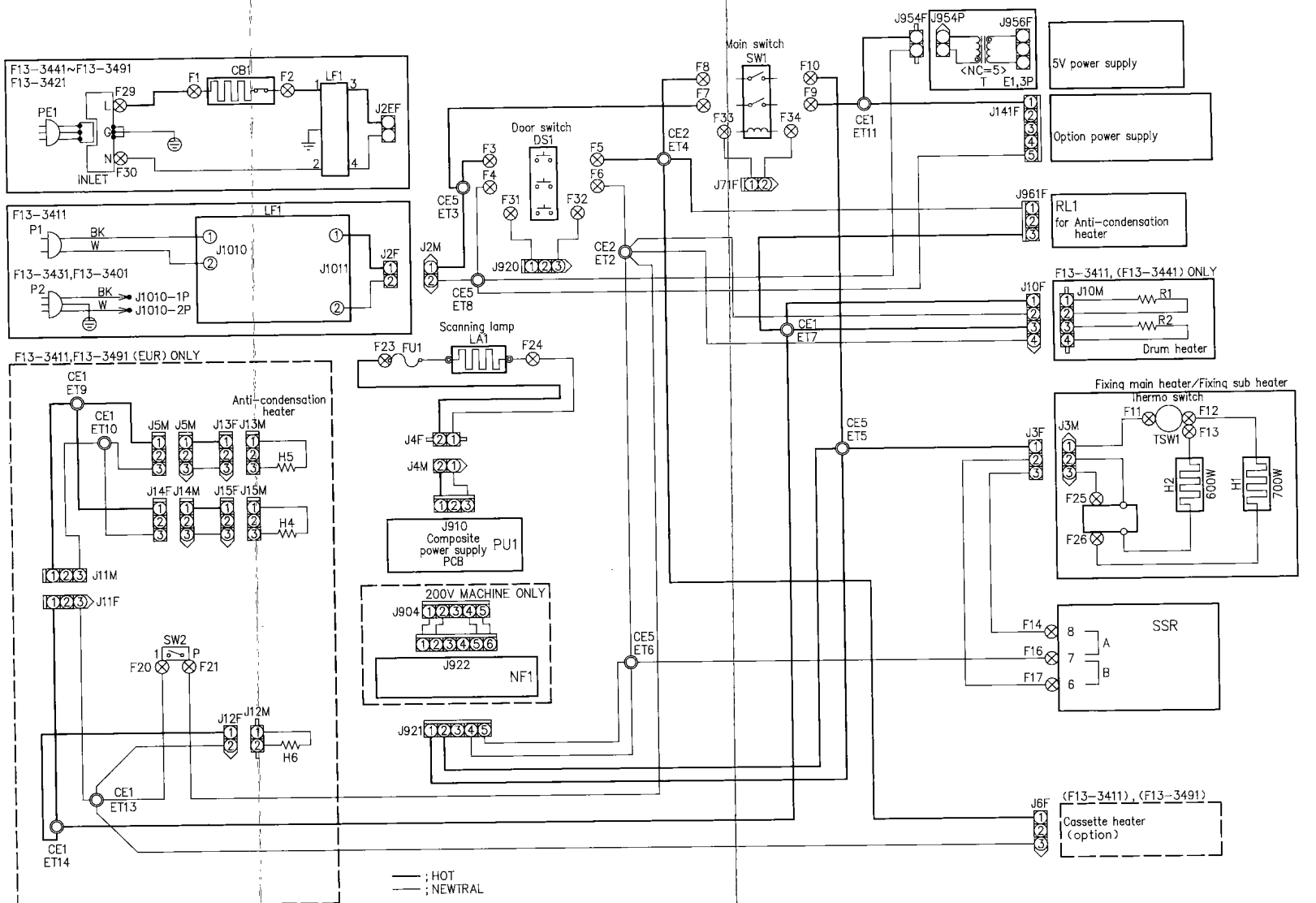
C. GENERAL CIRCUIT DIAGRAM

General Circuit Diagram (1/2)



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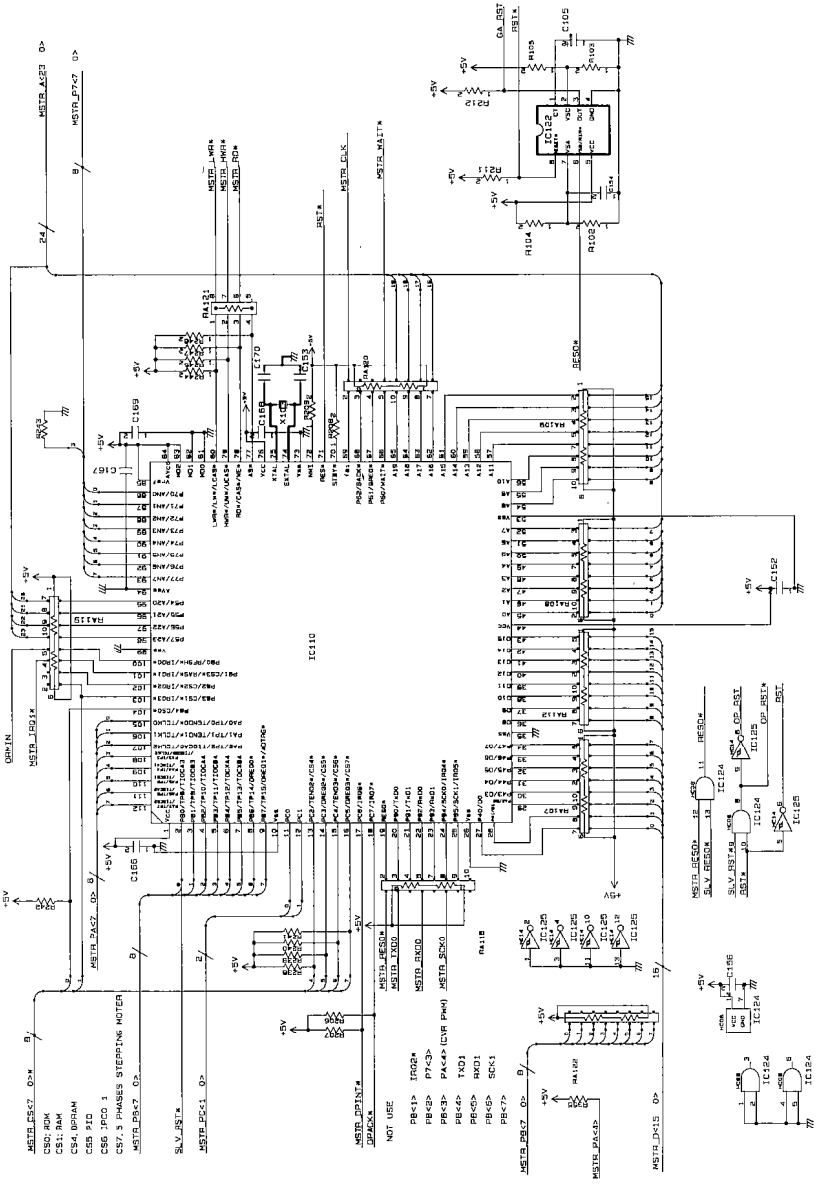


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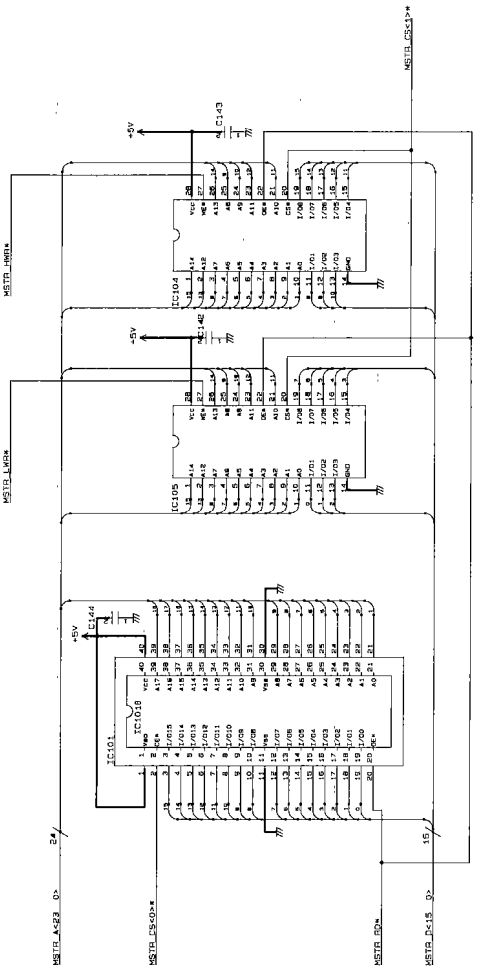
D. DC CONTROLLER CIRCUIT DIAGRAM

DC Controller (A502)



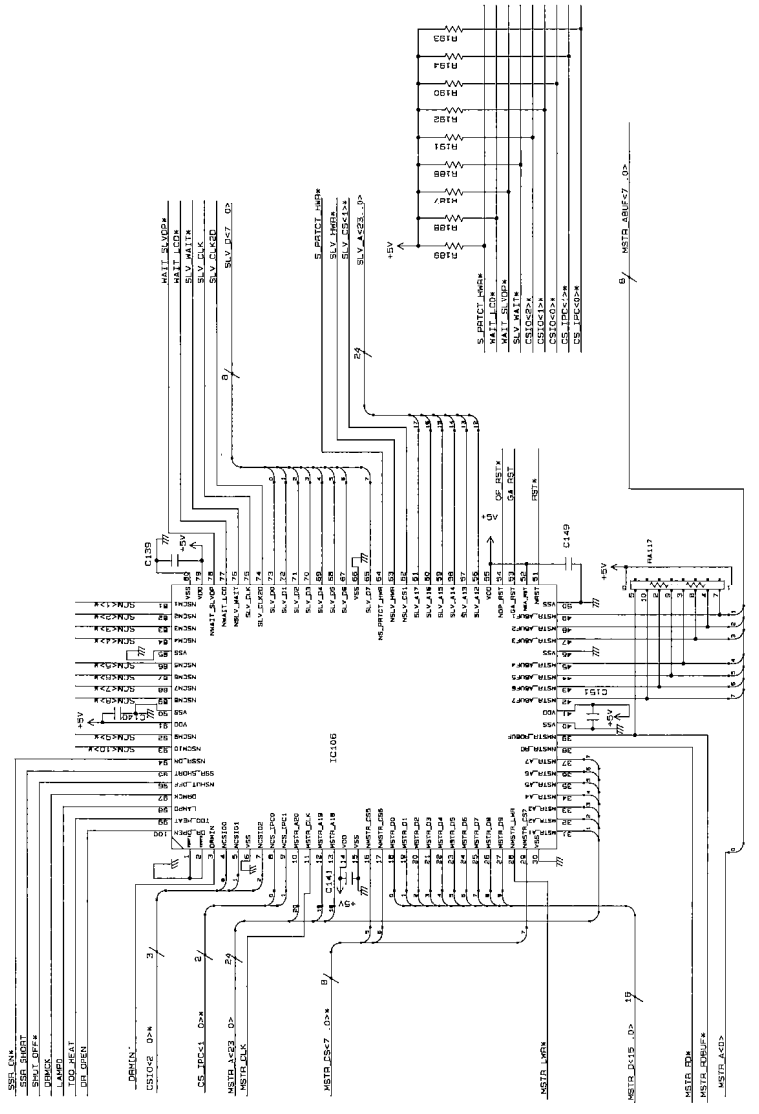
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DC Controller (A503)

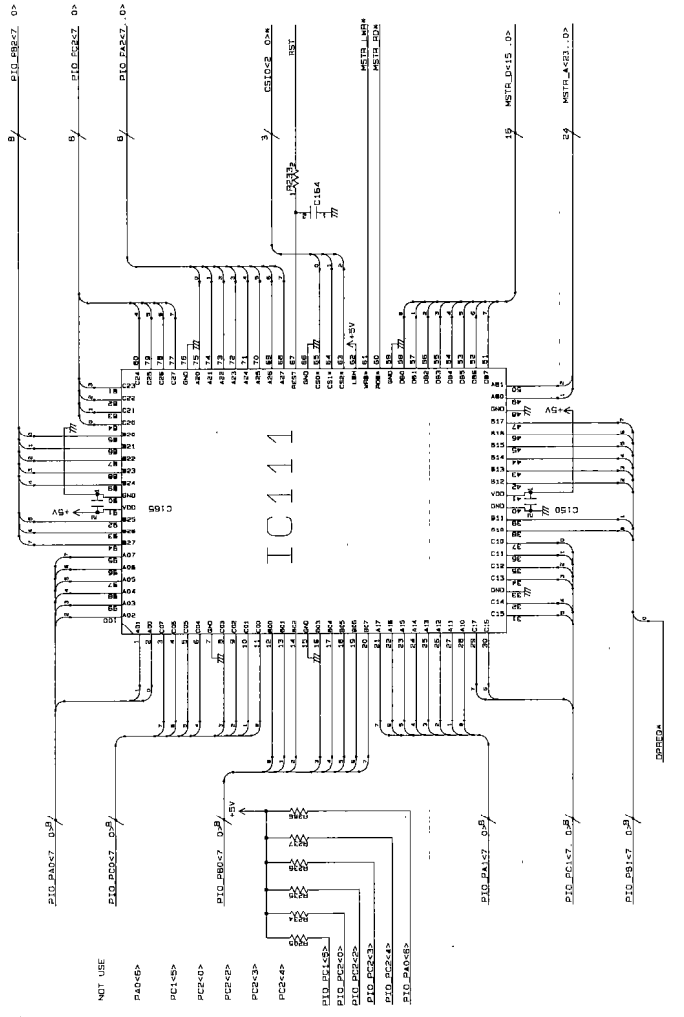


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DC Controller (A504)

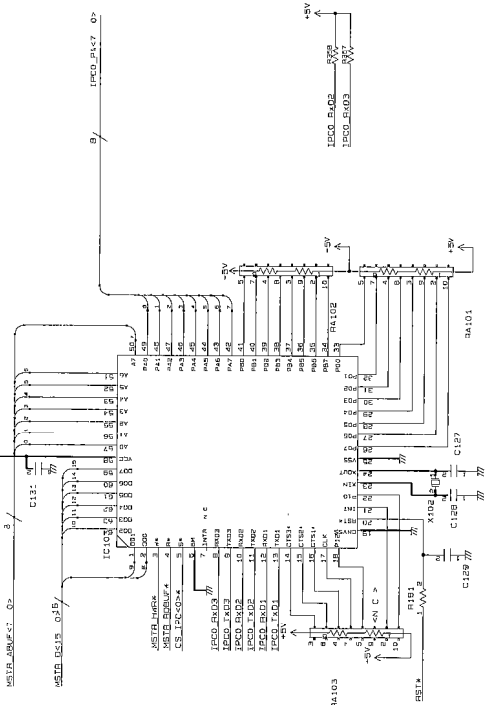


DC Controller (A505)

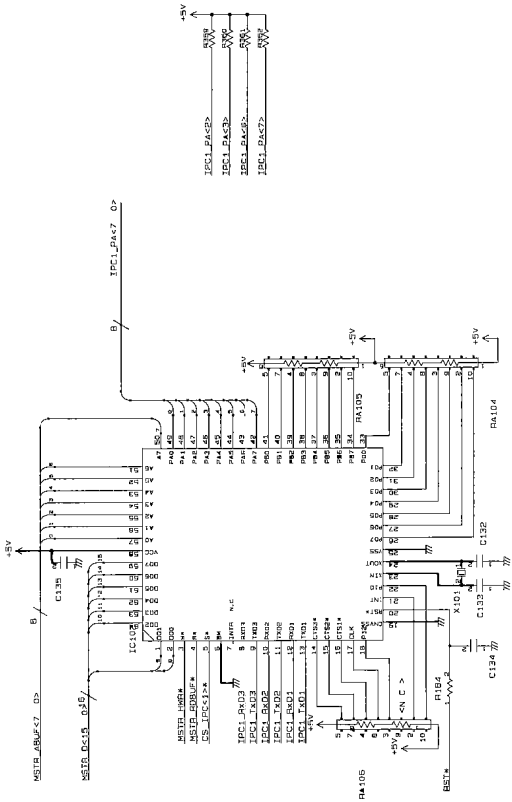


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DC Controller (A506)

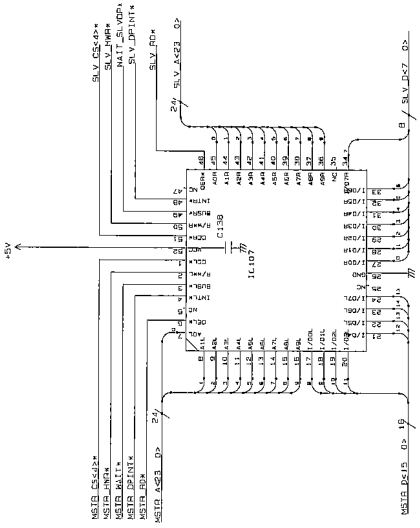


DC Controller (A507)



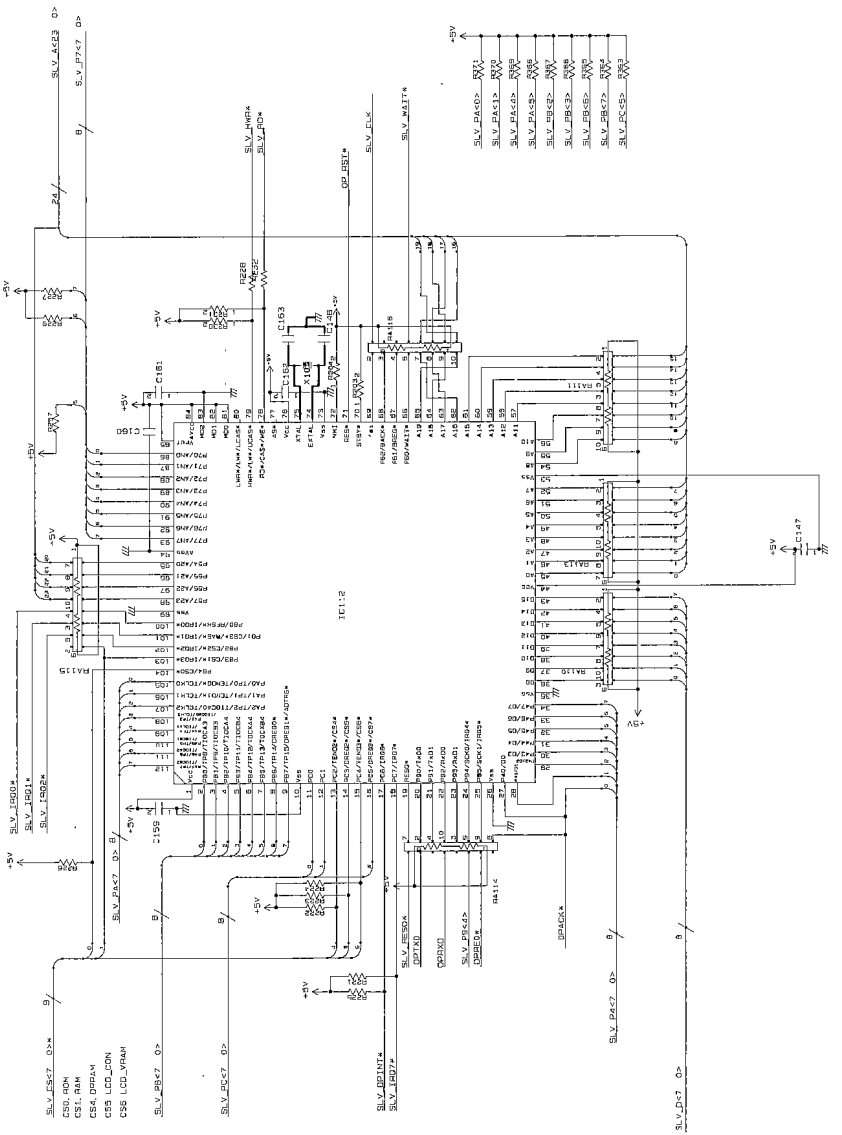
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DC Controller (A508)



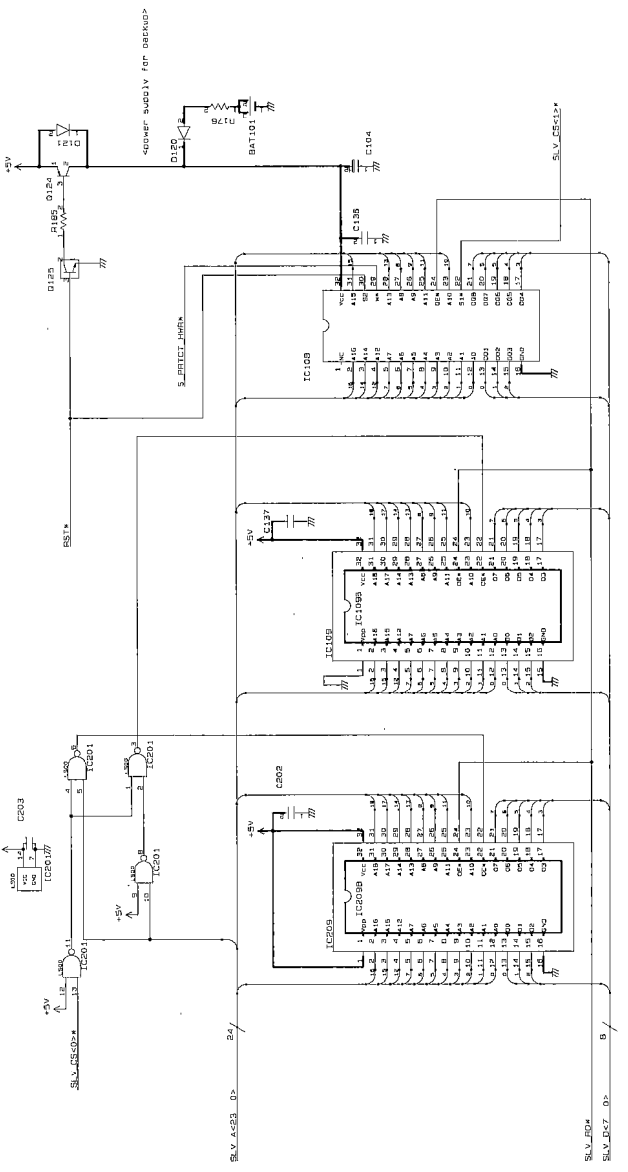
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DC Controller (A509)



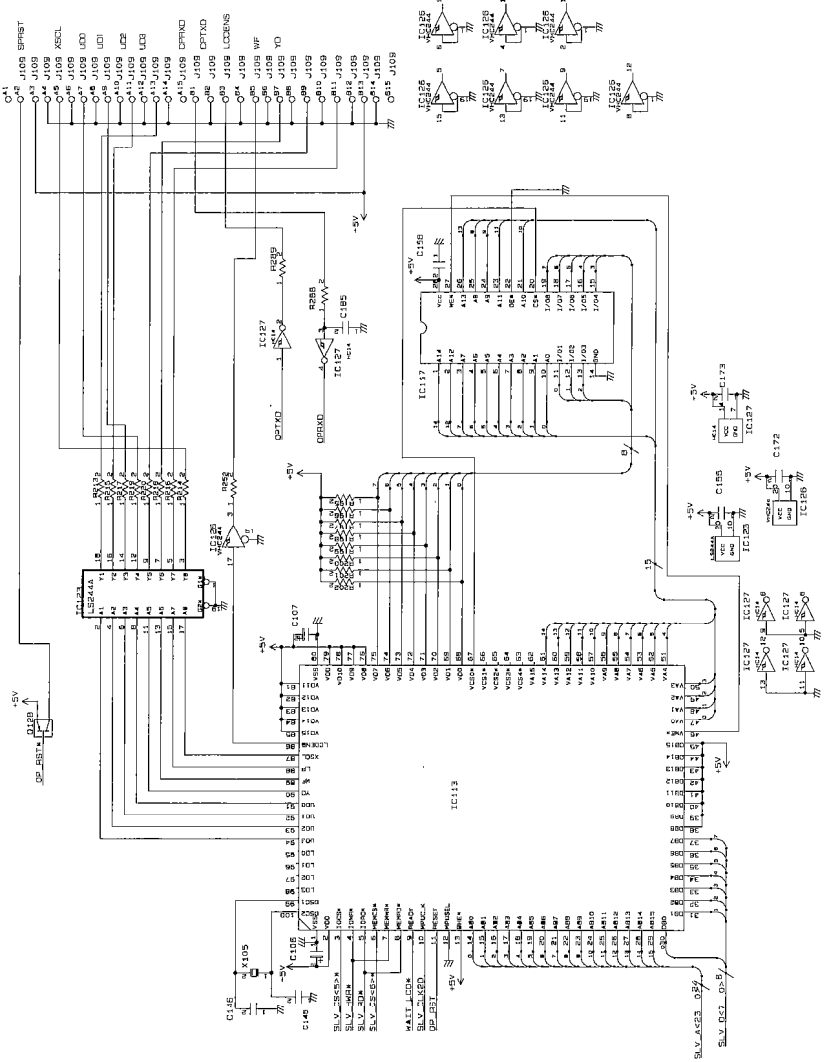
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DC Controller (A510)



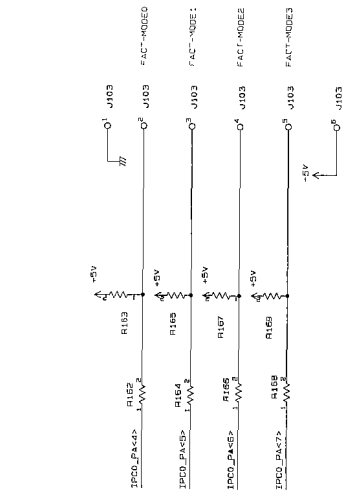
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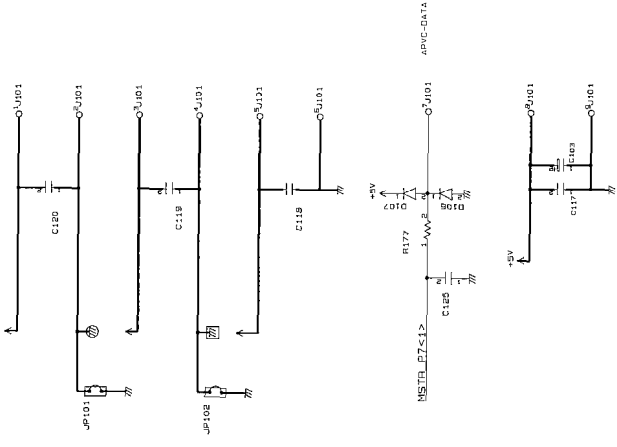
DC Controller (A511)



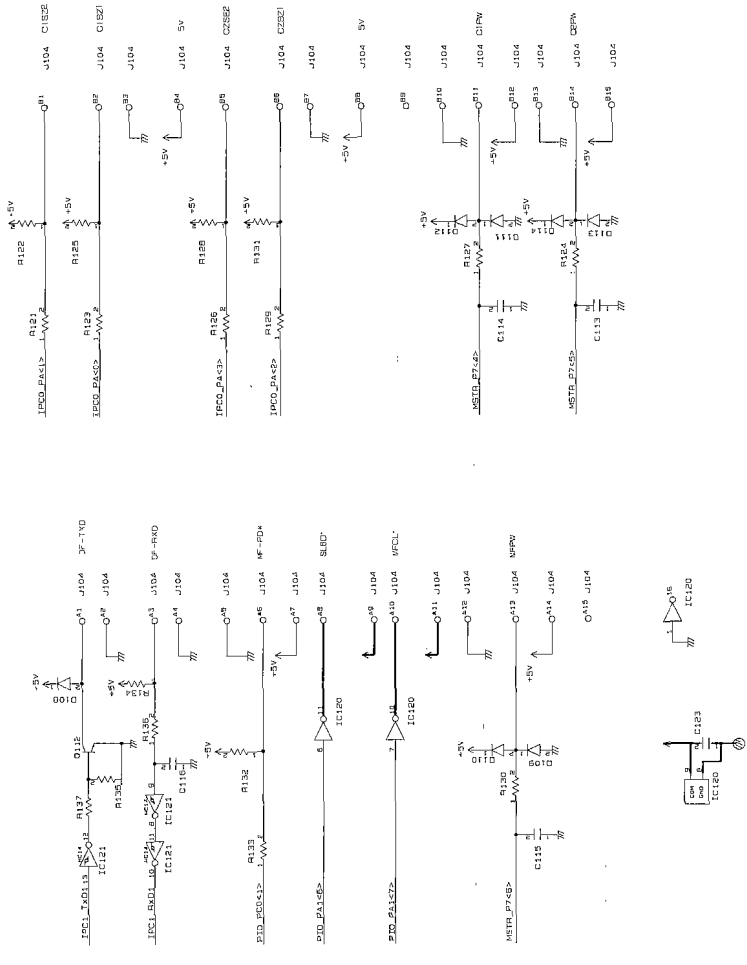
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DC Controller (A512)



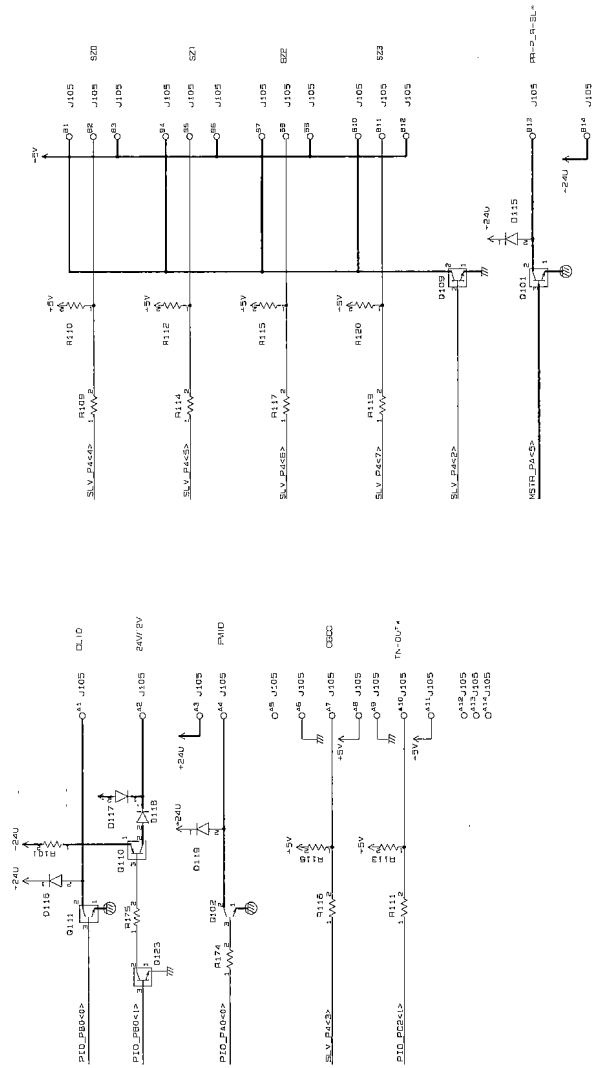


DC Controller (A513)

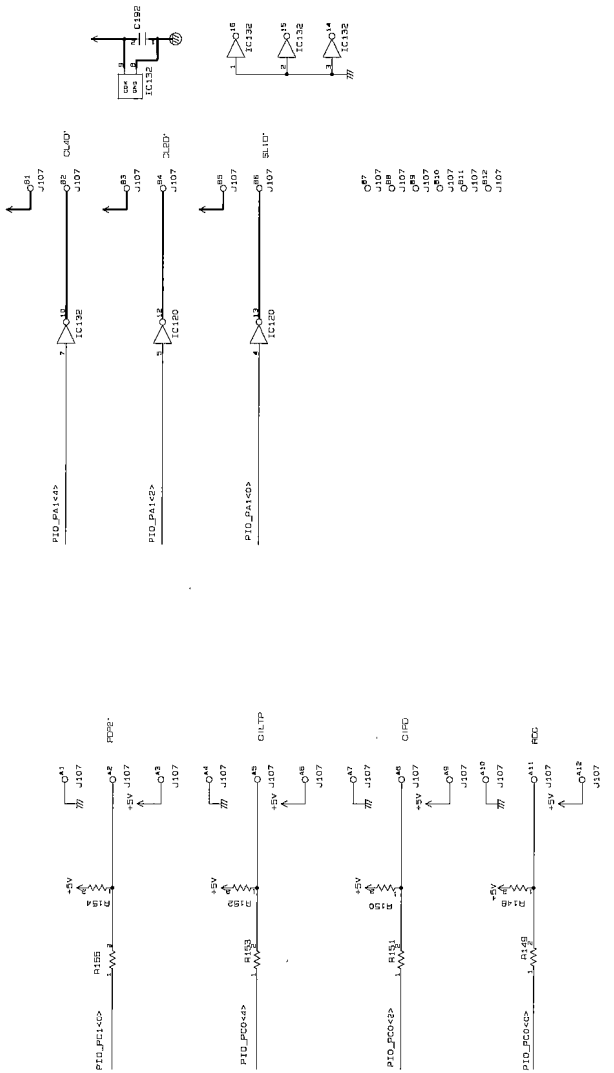


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DC Controller (A514)

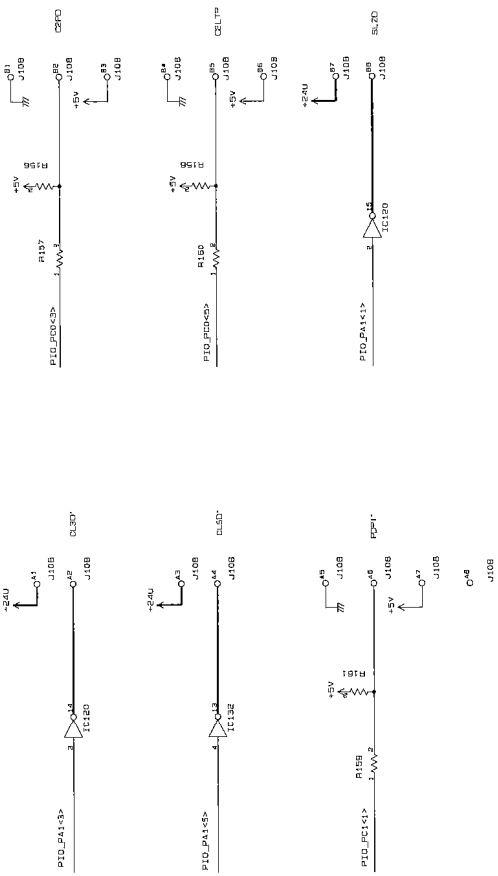


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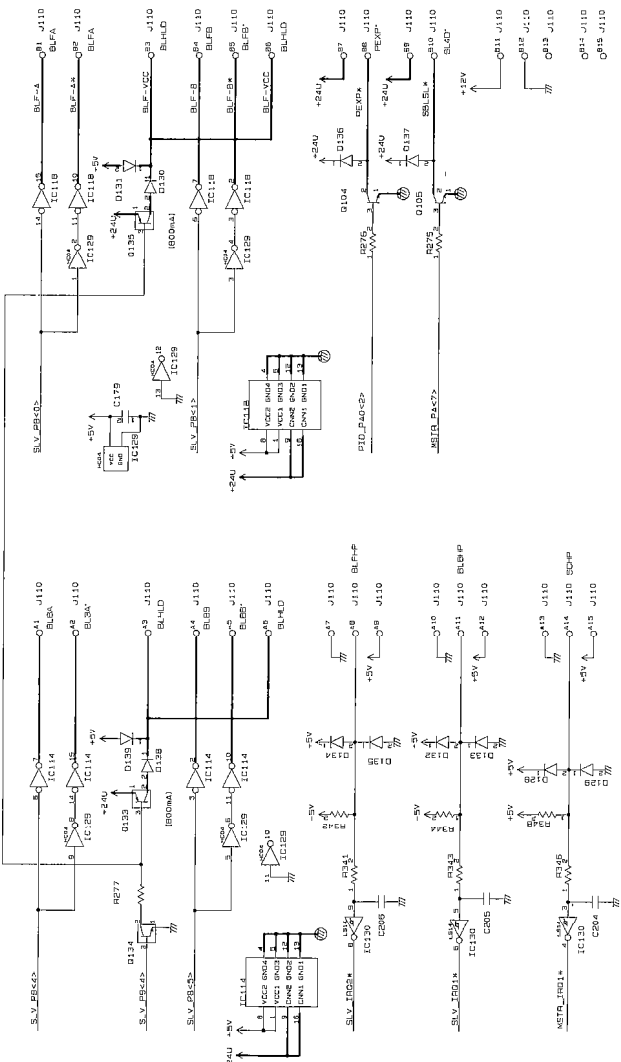


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DC Controller (A516)

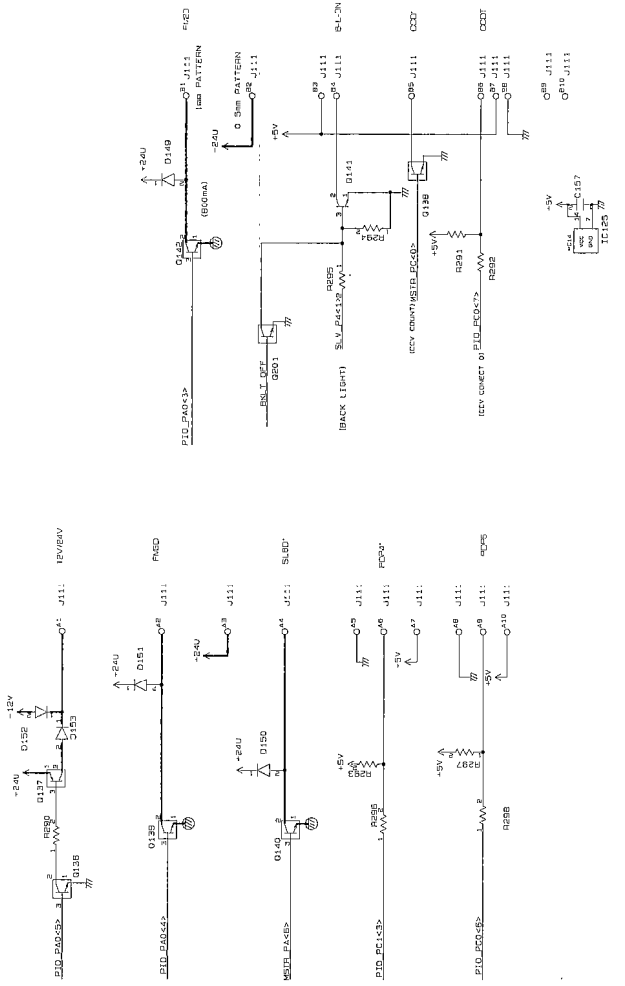


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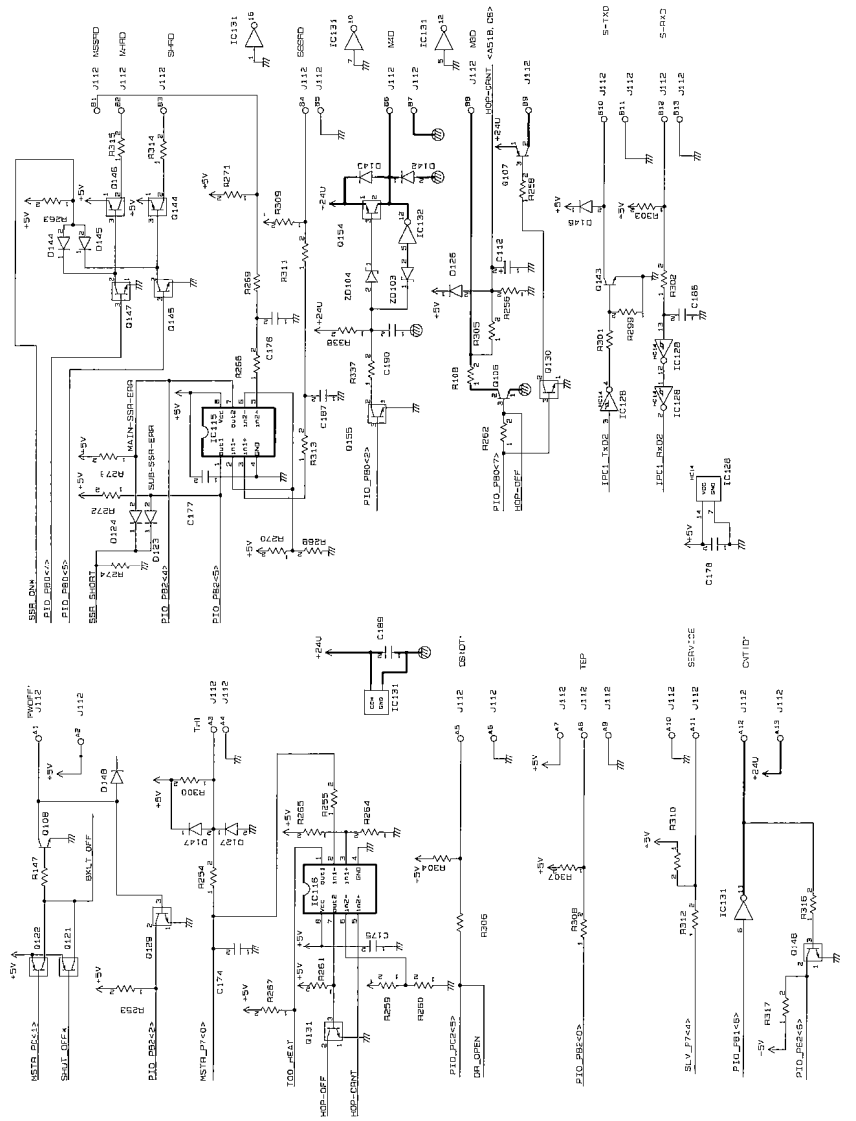


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DC Controller (A518)

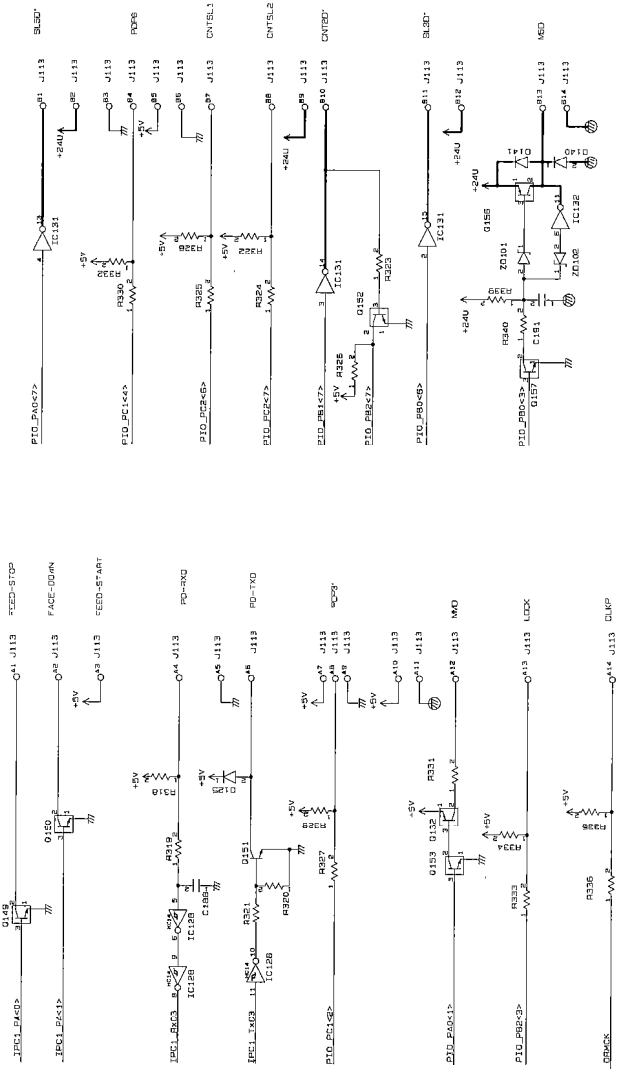


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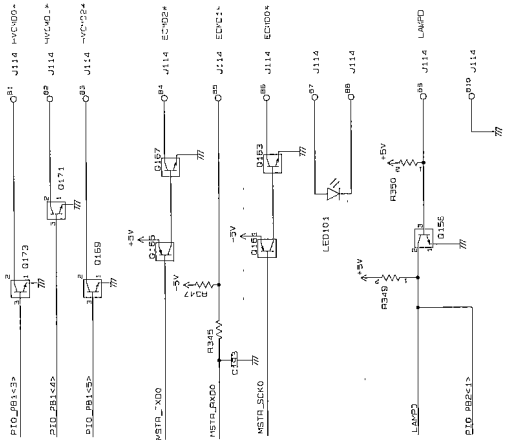


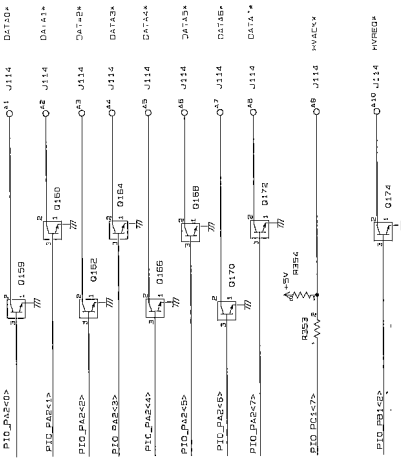
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DC Controller (A520)



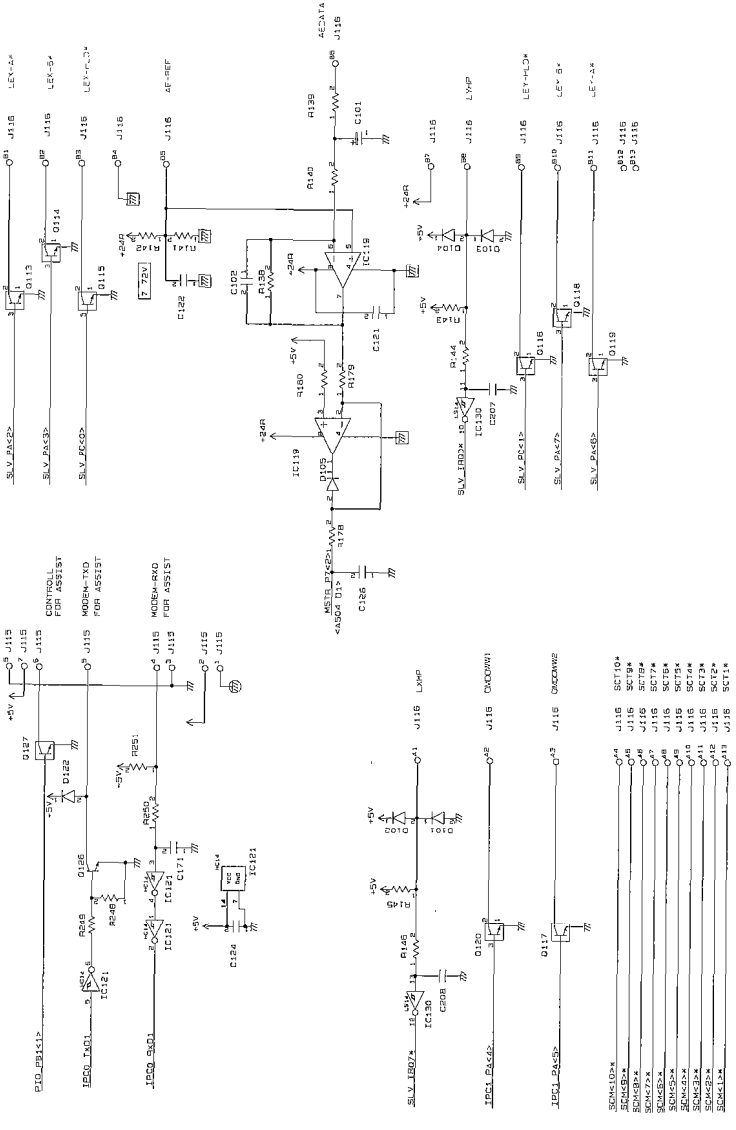
DC Controller (A521)





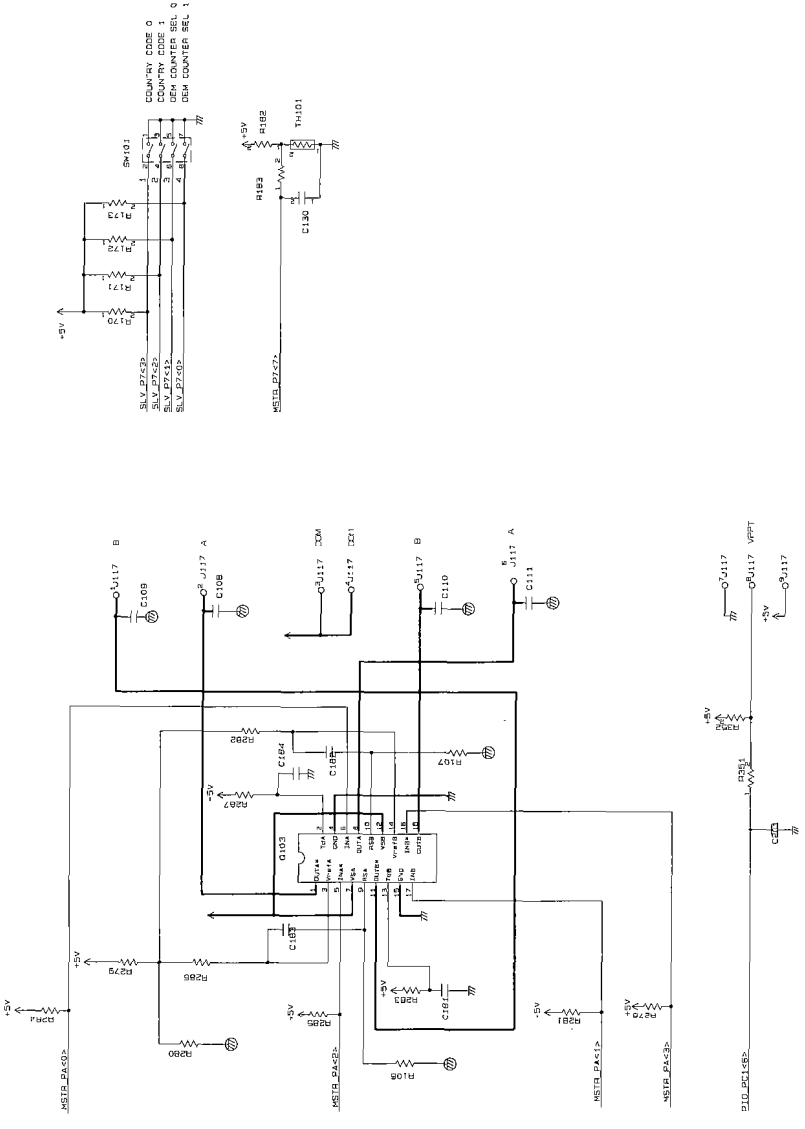
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DC Controller (A522)



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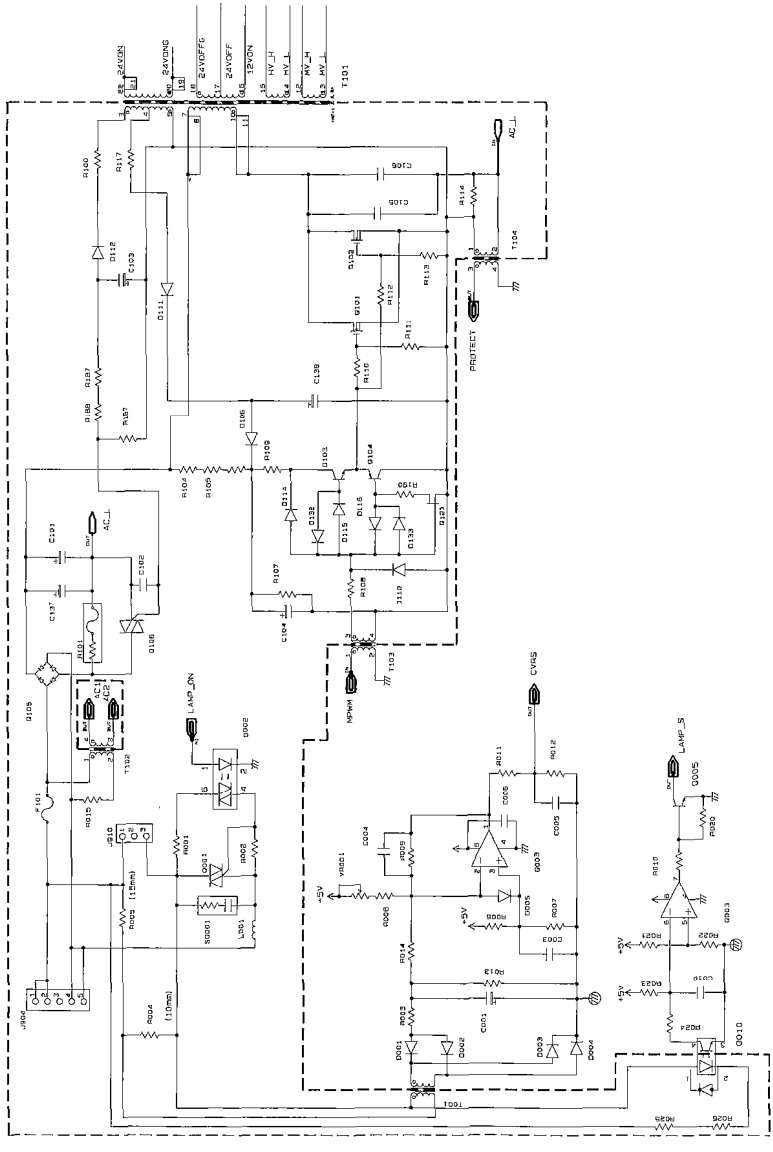
DC Controller (A523)



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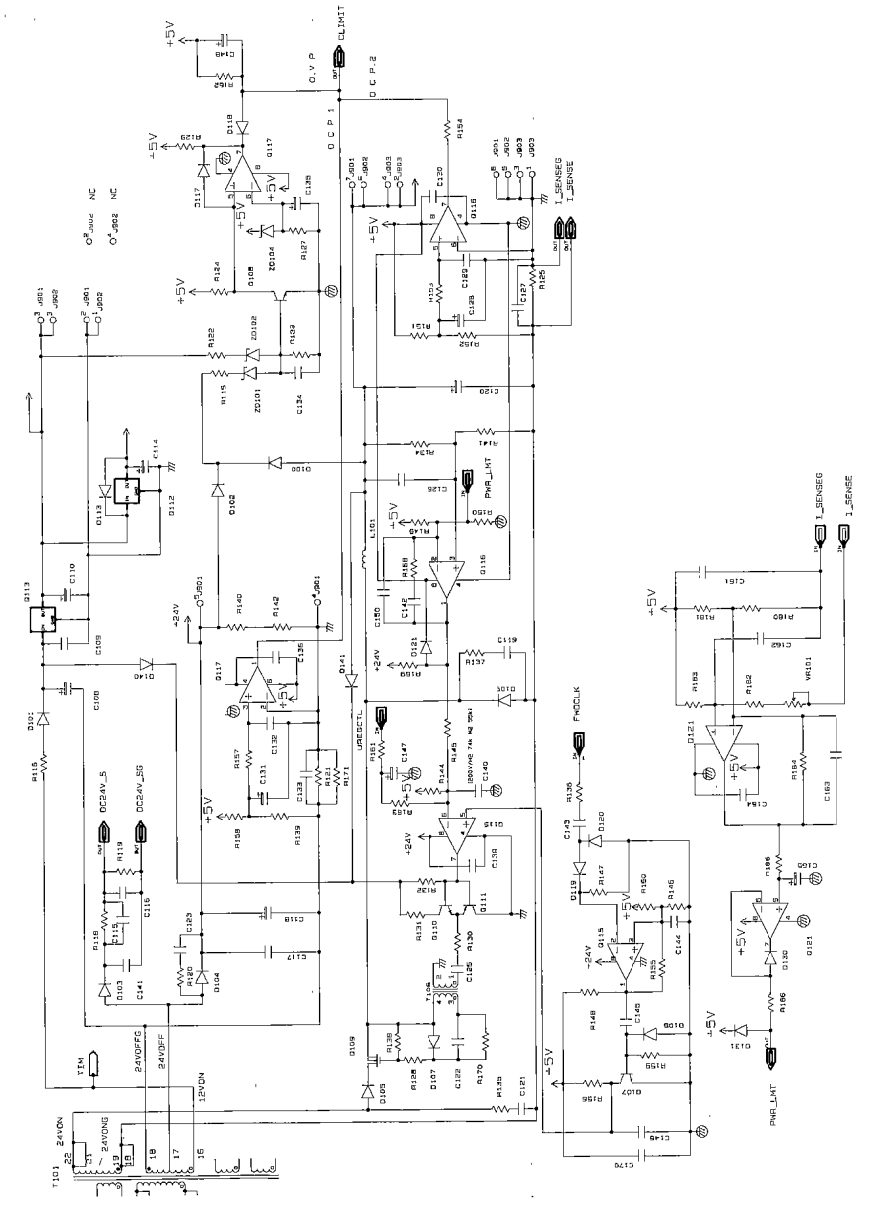
E. COMPOSITE POWER SUPPLY CIRCUIT DIAGRAM

Composite Power Supply PCB (A502)



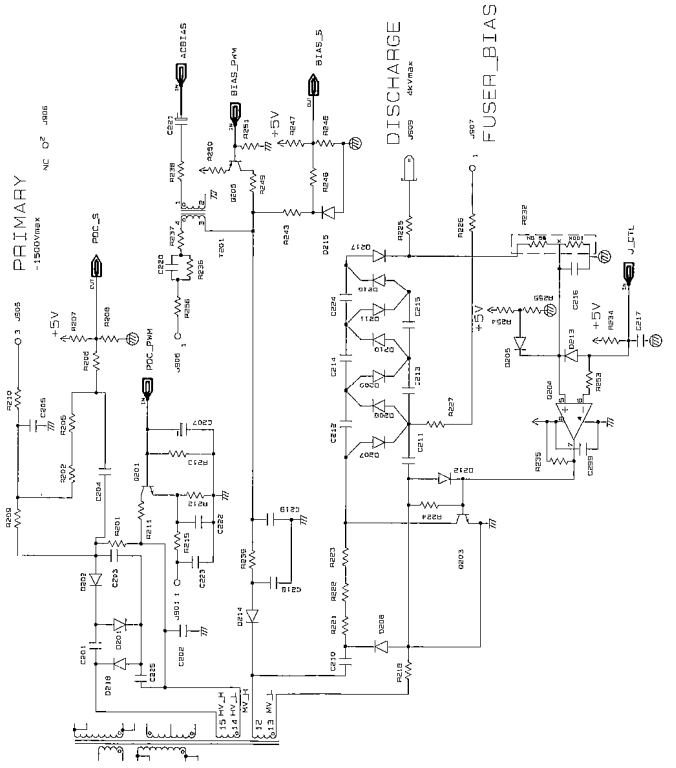
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Composite Power Supply PCB (A503)

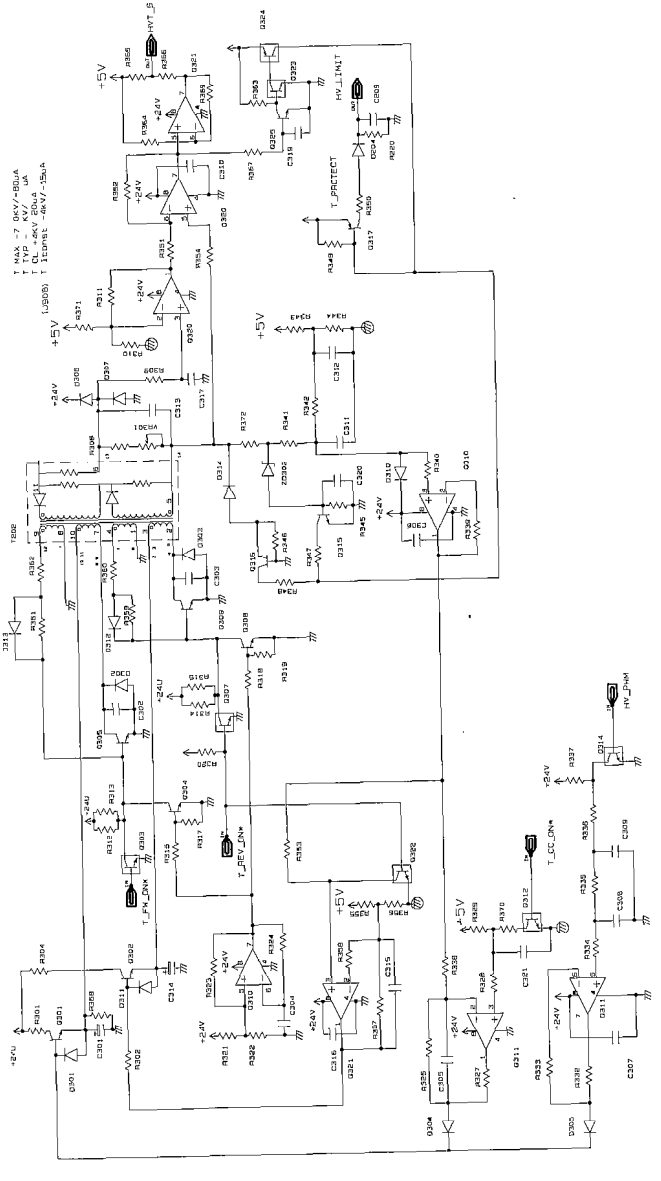


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Composite Power Supply PCB (A504)

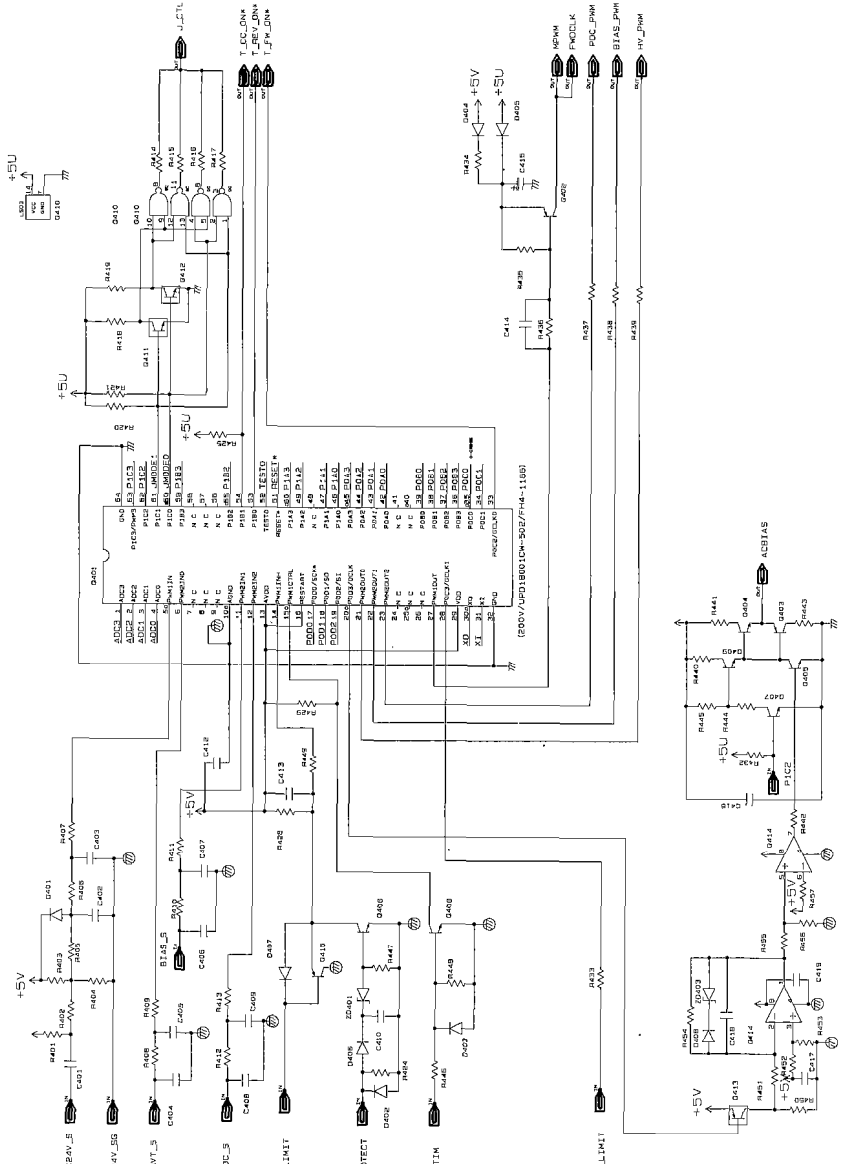


Composite Power Supply PCB (A505)



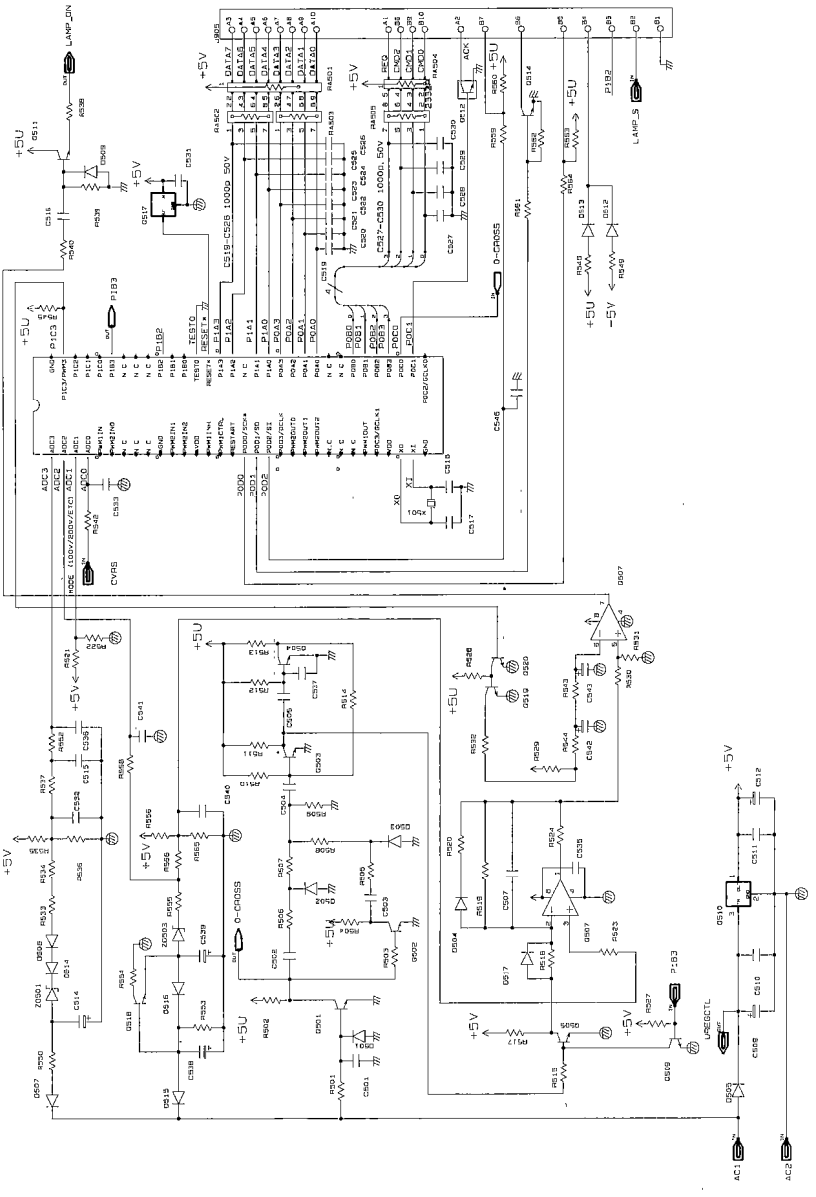
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Composite Power Supply PCB (A506)



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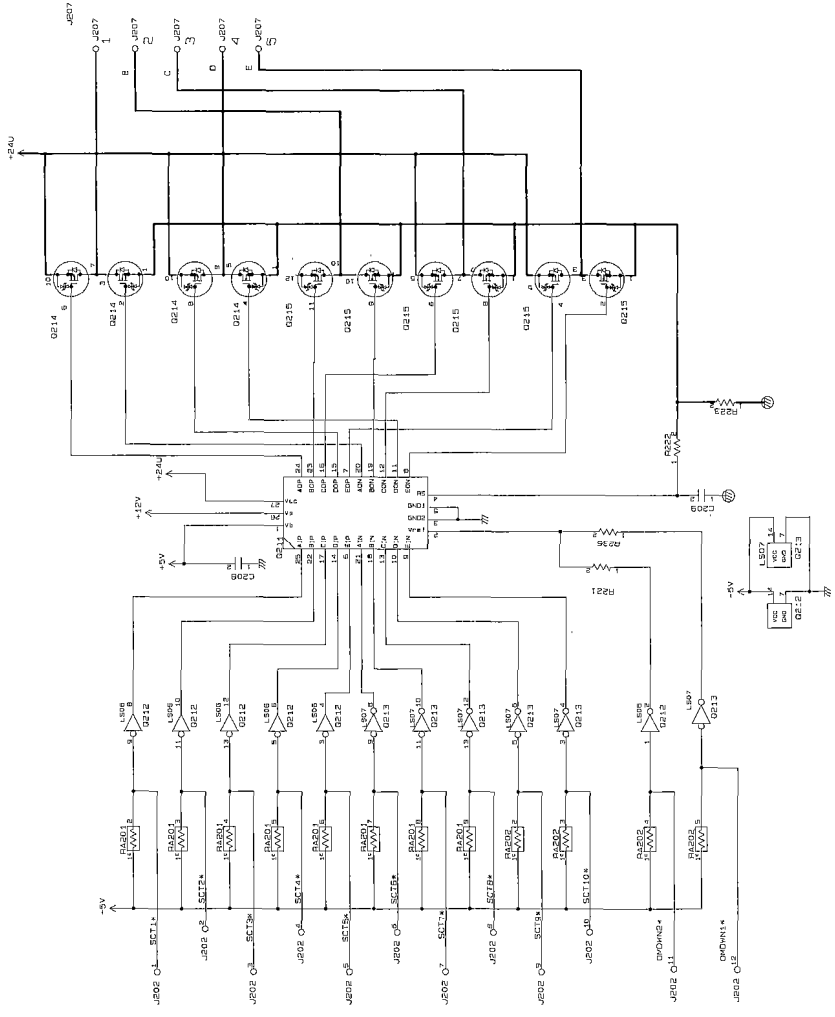
Composite Power Supply PCB (A507)



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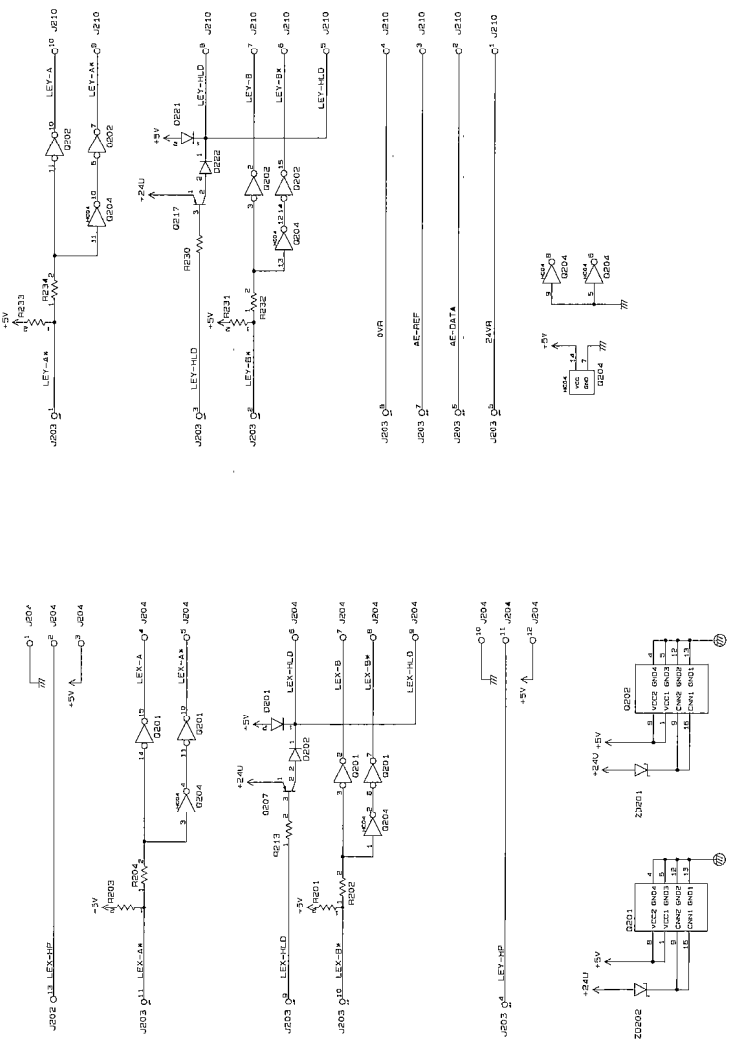
F. MOTOR DRIVER CIRCUIT DIAGRAM

Motor Driver PCB (A502)



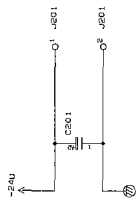
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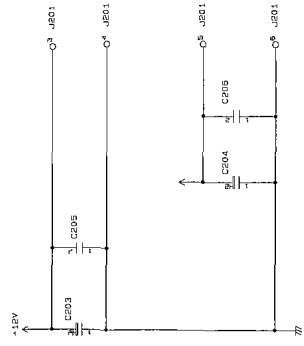
Motor Driver PCB (A503)



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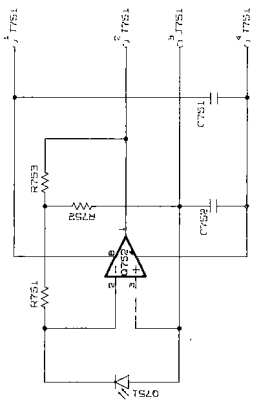
Motor Driver PCB (A504)





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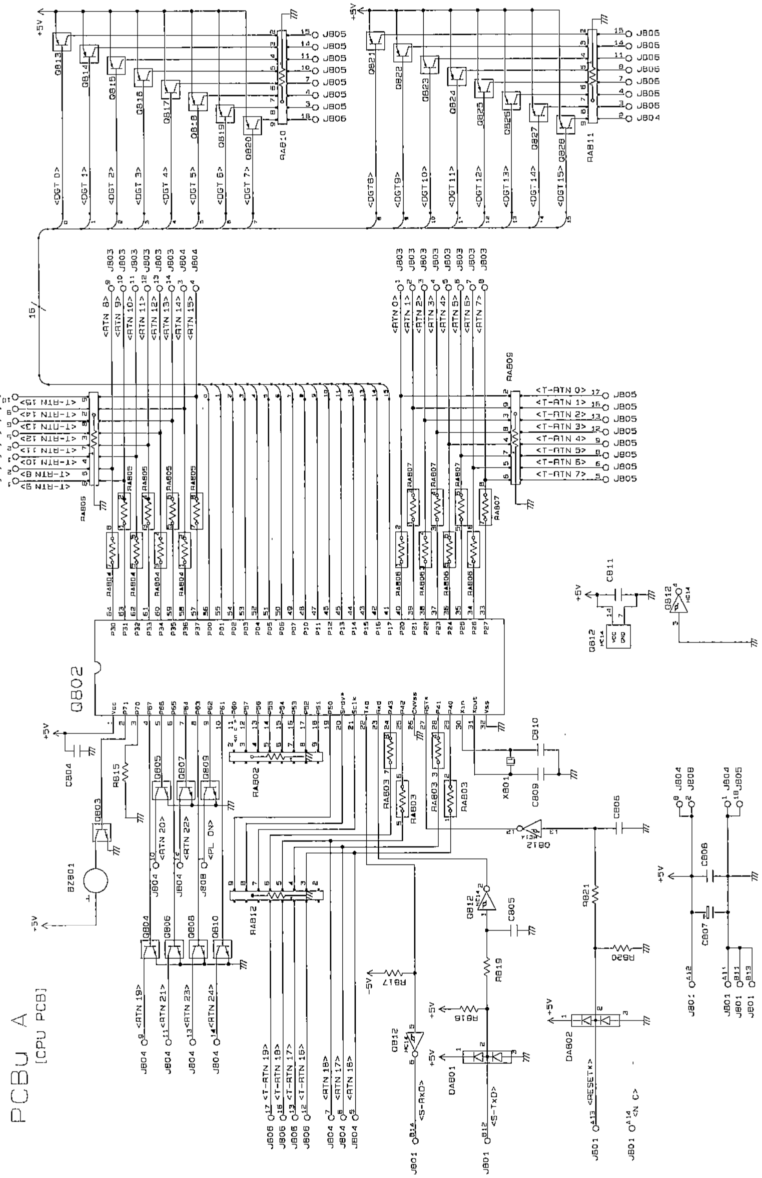
G. AE SENSOR CIRCUIT DIAGRAM



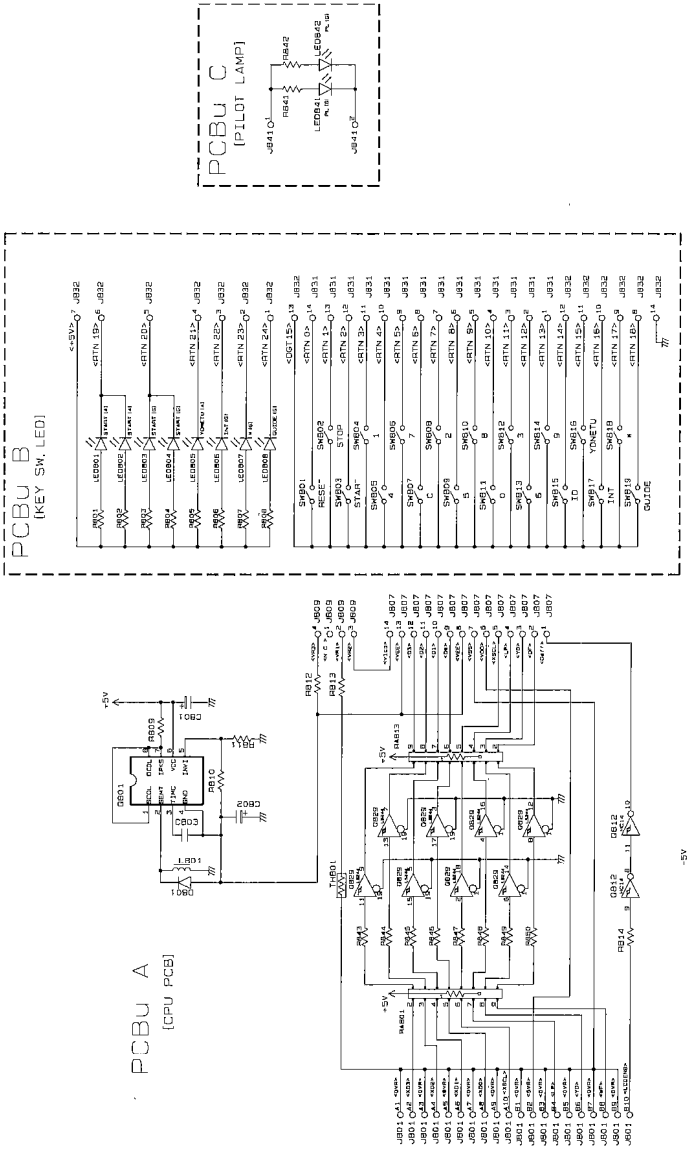
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H. CONTROL PANEL CIRCUIT DIAGRAM

Control Panel (A502)



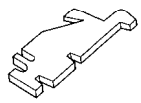
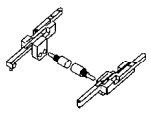
Control Panel (A503)



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I. SPECIAL TOOLS

See the table below for a list special tools used to service the copier in addition to standard tools set.

No.	Tool Name	Tool No.	Shape	Code*	Description
1	Door Switch	TKN-0093		A	
2	Mirror Positioning Tool (front, rear)	FY9-3002-000		B	Use it to adjust the distance between No.1 and No. 2 mirriors

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J. SOLVENTS AND OILS

No.	Materials name	Uses	Composition	Remarks
1	Ethyl alcohol (Ethanol) Iospropyl alcohol (Isopropanol)	Cleaning: e.g., glass, plastic, rubber parts; external covers	C_2H_5O $(CHZ_3)_2$ CHOH	• Do not bring near fire. • Procure locally. • Ispropyl alcohol may be substituted.
2	MEK	Cleaning: e.g., metal; oil or toner dirt	CH_3 COC_2H_3 Methylethyl ketone	• Do not bring near fire. • Procure locally.
3	Heat-resistant grease	Lubricating: fixing drive assemblies	Lithium soap (mineral oil family) Molybdenum bisulfate	• CK-0427 (500 g/can)
4	Lubricating oil	Lubricating: scanner rail, spring clutch	Mineral oil (paraffin family)	• CK-0451 (100 cc)
5	Lubricating oil	Lubricating: pick-up assembly roller bushing (FS2-1005-000)	Mineral oil (paraffin family)	• CK-0524 (100 cc)
6	Lubricating oil	Lubricating: drive and friction parts	Silicone oil	• CK-05512 (20 g)

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